AD640142

AD

USAAVLABS TECHNICAL REPORT 66-68

CH-47A CHINOOK FLIGHT LOADS INVESTIGATION PROGRAM

CLEARINGHOUSE
FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION

Hardcopy	Microfiche		
$5.00	$1.00	186 pp	

ARCHIVE COPY

Code 1

By

Joseph F. Braun

F. Joseph Giessler

July 1966

U. S. ARMY AVIATION MATERIEL LABORATORIES
FORT EUSTIS, VIRGINIA

CONTRACT DA 44-177-AMC-221(T)

TECHNOLOGY INCORPORATED

DAYTON, OHIO

DDC
OCT 12 1966
B

Distribution of this document is unlimited

U S ARMY MATERIEL COMMAND

Disclaimers

The findings in this report are not to be construed as an official Department of the Army position unless so designated by other authorized documents.

When Government drawings, specifications, or other data are used for any purpose other than in connection with a definitely related Government procurement operation, the United States Government thereby incurs no responsibility nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission, to manufacture, use, or sell any patented invention that may in any way be related thereto.

Trade names cited in this report do not constitute an official endorsement or approval of the use of such commercial hardware or software.

Disposition Instructions

Destroy this report when no longer needed. Do not return it to the originator.

CFSTI WHITE SECTION ☒
DDC BUFF SECTION ☐
UNANNOUNCED ☐
JUSTIFICATION ....

BY ....
DISTRIBUTION/AVAILABILITY CODES

DIST.	AVAIL. and/or SPECIAL	
1		

DEPARTMENT OF THE ARMY
U. S. ARMY AVIATION MATERIEL LABORATORIES
FORT EUSTIS, VIRGINIA 23604

This report has been reviewed by this Command and is considered to be technically sound. The report is published for the exchange of information and the stimulation of ideas.

Task 1P125901A14229
Contract DA 44-177-AMC-221(T)
USAAVLABS Technical Report 66-68
July 1966

CH-47A CHINOOK FLIGHT LOADS INVESTIGATION PROGRAM

by
Joseph F. Braun
F. Joseph Giessler

Prepared by

Technology Incorporated
Dayton, Ohio

for

U. S. ARMY AVIATION MATERIEL LABORATORIES
FORT EUSTIS, VIRGINIA

Distribution of this
document is unlimited

ABSTRACT

This report covers the collection and presentation of 165 hours of usable flight data for the CH-47A helicopter. The data recording system and the data processing procedure are described, and an analysis summary of the results of the flight data is presented. The flight data were recorded between 9 September 1964 and 2 December 1965. The area of operation was primarily at or adjacent to Fort Benning, Georgia. To analyze parameters according to distinct flight phases, the reduced data were separated into four mission segments: (1) takeoff and ascent; (2) maneuver; (3) descent, flare, and landing; and (4) steady state. In the form of tables, histograms, and exceedance curves, the data indicate the time flown in the mission segments and parameter ranges and the number of parameter peaks occurring in the missions and ranges of other parameters. Exceedance curves are given for both the maneuver and the gust normal load factors.

FOREWORD

The CH-47A helicopter phase of the research effort entitled "Flight Loads Investigation Program" is covered in this report. This phase of the program was intended to collect, process, and analyze 200 hours of operational flight loads data.

The program, which extended from 30 June 1964 to 15 February 1966, was sponsored by the U. S. Army Aviation Materiel Laboratories, Fort Eustis, Virginia, under Contract DA 44-177-AMC-221(T). Mr. David Chestnutt was the contract monitor.

Principal investigators for Technology Incorporated were as follows: Mr. Joseph F. Braun, project engineer, was in charge of vehicle instrumentation and data acquisition; Messrs. Cyril Peckham and John Nash, respectively, established and implemented the data processing procedure; Mr. William Morrin wrote the computer program to govern the computer calculation and compilation of data; Mr. Larry Clay directed the data analysis and presentation; and Dr. Robert Loewy, consultant, lent analytical support in the analysis and presentation of the helicopter data.

CONTENTS

ILLUSTRATIONS

Figure		Page

TABLES

SYMBOLS

Symbol	Definition	Computer Equivalent
C_T	thrust coefficient	CT
C_T/σ	thrust coefficient ratio	CT/S
h_d	density altitude, feet	
n_z	normal load factor	NZ
OAT	outside air temperature, °F	
p_a	atmospheric static pressure, inches of mercury	
R	rotor radius, 29.55 feet	
V	airspeed, feet per second or knots	
W	gross weight, pounds	
μ	rotor tip speed ratio	MU
π	ratio of circumference to diameter of circle	
ρ	local air density, pounds per square foot	
σ	rotor solidity, 0.062 (Reference 4)	S
Ω	rotor angular velocity, radians per second	

INTRODUCTION

Under contract to the U. S. Army Aviation Materiel Laboratories, Fort Eustis, Virginia, Technology Incorporated assisted in conducting a flight loads program that involved four types of Army rotary- and fixed-wing aircraft: the fixed-wing OV-1A airplane and the rotary-wing UH-1B, CH-54A, and CH-47A helicopters. The program, entitled "Flight Loads Investigation Program", was designed to determine the technical feasibility of recording adequate flight loads on helicopters for the subsequent derivations of loads spectra. From their base at Fort Benning, Georgia, these aircraft flew combat air assault missions during special maneuvers and normal flight training while the flight loads data were recorded. The contribution of the aircraft types to the 697 hours of usable data collected was as follows: OV-1A, 203 hours; UH-1B, 219 hours; CH-54A, 110 hours; and CH-47A, 165 hours.

Since the data from the OV-1A, UH-1B, and CH-54A were presented in previous reports (see References 1, 2, and 3), this report gives the data from only the CH-47A.

The data are presented in the forms of tables, histograms, and exceedance curves. The tables give the number of measured and calculated parameter peaks distributed among various combinations of parameter ranges; the histograms show the percentages of flight time spent in selected ranges of the flight parameters; and the exceedance curves indicate the number of hours required to reach or exceed both maneuver and gust normal load factors.

PROGRAM OBJECTIVES

The primary program objective was to determine the magnitude and relative frequency of the loads incurred by each of the four aircraft types. Parameters chosen for measurement were those considered to be most indicative of the loads sustained and most descriptive of the aircraft motion and activity.

A sample of 200 hours of usable flight data from each aircraft type was desired in order to perform the data analysis. Although two of the four aircraft types did not accumulate these hours because of problems and complications inherent in a field test program, the actual data acquired were sufficient for a valid sample. Furthermore, since the data results provide the initially desired design information and will likely lead to improved operational procedures, it is believed that the program objectives were fulfilled.

DATA RECORDING AND PROCESSING

DATA RECORDING

As illustrated by the functional block diagram in Figure 1, an oscillographic recording system was installed in each of six CH-47 helicopters. Eight parameters were recorded on the oscillograms: (1) airspeed, (2) altitude, (3) normal acceleration at the center of gravity, (4) outside air temperature, (5) rotor rpm, (6) collective stick position, (7) longitudinal cyclic stick position, and (8) time. Between 9 September 1964 and 2 December 1965, 165 hours of usable flight data were collected during 769 flights which involved 230 engine starts.

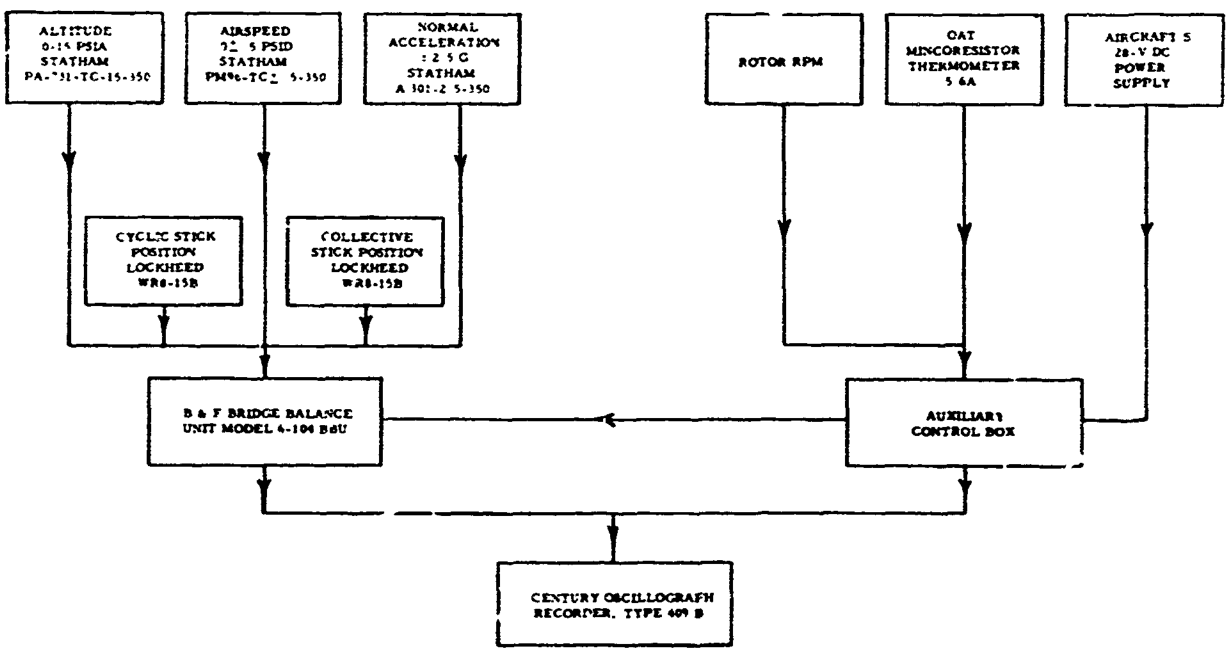


Figure 1. Block Diagram of CH-47A Instrumentation System

DATA EDITING PROCEDURES

Data editing consisted principally of checking time intervals, marking off each flight into four mission segments, determining the acceleration

peaks to be read and identifying the cause as either gust or maneuver, and determining the longitudinal cyclic and collective stick positions to be read.

The four mission segments are (1) takeoff and ascent; (2) maneuvering; (3) descent, flare, and landing; and (4) steady state. During the first three mission segments, which comprise the transient part of flight, the stick position traces show no steady values about which the stick traces seem to deviate, while the airspeed and altitude traces manifest frequent changes. Mission Segment 1 (takeoff and ascent) includes not only the takeoff and climb to the initial steady-flight altitude but also unsteady ascents to other steady-flight altitudes. Mission Segment 2 (maneuvering) consists of any transient parts of flight which are not characteristic of Mission Segments 1 and 3. During maneuvering, the normal acceleration trace is usually very active. In addition to the unsteady part of flare and landing, Mission Segment 3 (descent, flare, and landing) includes the unsteady part of any descent whether intended for a new steady-flight altitude or for landing. Mission Segment 4 (steady state) includes those parts of the flight where the stick traces are relatively steady and where the airspeed and altitude traces are steady or changing smoothly. Such characteristics prevailed during cruise, hover, and steady ascent and descent.

The criterion for selecting acceleration peaks to be read was those peaks which were outside fixed threshold levels and which rose or fell 50 percent of the peak value, or 0.2g, whichever was greater. Whereas the fixed thresholds were 0.8 and 1.2g, editors used levels of 0.84 and 1.16g to ensure the inclusion of all valid peaks. Any peaks found within the fixed threshold levels during the computer processing were eliminated. The identification of peaks as either maneuver- or gust-induced was facilitated by observing that either or both of the stick position traces always deflected before a maneuver-induced peak.

The criterion for selecting the stick position peaks to be read was those peaks which rose and fell 10 percent of full stick travel and which measured at least 10 percent above or below the normal values. These normal values depended on the mission segment. For the steady-state mission segment, the normal values were the steady values of the stick positions just before and after the peak value. For the three transient mission segments (where there were no "steady" stick positions), an arbitrary set of normal values was chosen to approximate the stick positions during hover. The selected values are listed by aircraft serial number in Table I.

TABLE I
STICK POSITION SELECTED VA UES

Aircraft No.	Long. Cyclic Normal (pct)	Collective Normal (pct)
416	42.5	42.9
417	49.9	52.2
418	59.2	46.0
902	54.2	47.7
907	54.7	46.5
916	53.6	39.1

In addition to the foregoing editing, all traces except those for the steady stick positions were marked at each instant of an acceleration or stick position peak during the transient mission segments. Because of the unsteady state prevailing during the three transient mission segments, no elapsed time was associated with these readings; the traces marked here were read only to provide corresponding parameter values in tabulations of the peak values. During the steady-state mission segment, however, all traces except that for acceleration were marked at critical points to permit an adequate time-history representation of the parameters. Consequently, the elapsed time at each steady flight condition and the steady-state pai meter values corresponding to the peaks were tabulated.

DATA READING AND QUALITY CONTROL

All edited data points were measured on semiautomatic oscillogram readers, and the measurements were transcribed directly to punched cards. When all data were extracted from a flight, a printout of the cards was given to the Quality Control Section for preliminary data checking. Using standard quality control techniques, this section manually remeasured random points comprising an adequate sample, compared these measurements with those produced by the semiautomatic readers, and established mean and standard deviations from the differences between the two sets of readings to determine and control the desired reading accuracy. Any flights whose measurements did not meet the accuracy standards were reread by the semiautomatic readers. In

addition to the attainment of accurate values, uniformity was obtained in the interpretation and measurement of the traces.

When all data had been processed, the mean and standard deviations were calculated for the entire data sample. If a normal distribution of reading errors is assumed, 99.7 percent of the reading should be within three standard deviations of the true values. Based on average calibration values, Table II shows the mean deviation and the three standard deviations for each parameter.

TABLE II
QUALITY CONTROL VALUES FOR EACH PARAMETER

Parameter	Mean Deviation	Three Standard Deviations (99.7% Accuracy Limit)
Normal Load Factor, g	.0009	± .046
Airspeed, knots*	-0.04	± 2.1
Altitude, feet**	-1.5	± 63
Outside Air Temperature, °F	0.05	± 2.2
Rotor, rpm	-0.08	± 3.3
Long. Cyclic Stick, percent	-0.12	± 3.1
Collective Stick, percent	-0.13	± 3.2

*Computed at a 90-knot indicated airspeed

**Computed at a 1000-foot density altitude and standard temperature

DATA COMPUTATIONS

The normal load factor, n_z, was read directly from the normal acceleration trace. To present positive and negative peaks conveniently, an incremental normal load factor, Δn_z, was derived from each n_z peak by using the relation

$$\Delta n_z = n_z - 1.0 .$$

Since density altitude is normally used in describing helicopter performance, it was calculated from the following equation (see Reference 5):

$$h_d = 145,300 \left[1 - \left(\frac{518.4 \, p_a}{29.92 \, OAT + 13,745.2} \right)^{0.235} \right] .$$

Only indicated airspeeds are given, since the instrument installation correction to derive the calibrated airspeed was not considered to be substantial enough to improve appreciably the accuracy of the indicated airspeed. For airspeeds below 110 knots, the correction is less than 4.6 knots; in addition, it depends on the thrust conditions of the rotor, such as those during hover and full power climb.

Rotor rpm and outside air temperature were computed by applying linear calibrations to the trace measurements. With the displacements of the stick position traces representing the deflections of the longitudinal cyclic stick from the full-forward position and the deflections of the collective stick from the full-down position, the respective stick positions were computed from the trace measurements in units of percent of full deflection. By an approximate differentiation of the altitude trace, the rate of climb was computed continuously during the steady-state mission segment and at each position stick or acceleration peak during the three transient mission segments. At the same times that the rate of climb was computed, the "longitudinal acceleration," or rate of change of airspeed, was derived by an approximate differentiation of the airspeed trace.

Two nondimensional parameters, the rotor tip speed ratio, (μ), and the ratio of the thrust coefficient, (C_T), to the rotor solidity, (σ), were calculated as follows. With a consistent system of units employed, μ was calculated as a nondimensional parameter from the following expression:

$$\mu = \frac{V}{\Omega R} .$$

The thrust coefficient ratio was calculated as a nondimensional parameter from the following expression:

$$C_T/\sigma = \frac{W}{\rho \pi R^2 (\Omega R)^2 \sigma} .$$

DATA RESULTS

The processed data representing the 165 hours of valid flight data are presented in the form of tables, histograms, and exceedance curves. The histograms and some types of tables show the flight time spent in ranges of one parameter versus ranges of a second parameter. With the exception of Table III, which distributes the total flight time among the four mission segments to illustrate the mission segment time versus gross weight, the times given are those covering the steady-state mission segment only. Other types of tables show for a parameter the number of its peaks falling within both given ranges of this parameter and those of a second parameter. For further data breakdowns, some of both types of tables are related to the single range of a third and a fourth parameter. As mentioned before, the exceedance curves indicate the number of hours required to equal or exceed a given parameter value.

Figures 2 through 17 are histograms showing the percentages of flight time spent in ranges of various parameters. Except for Figures 2 and 3, which are based on the total flight time, the time given covers the steady-state mission only. Figure 2, giving the percentage of total flight time spent in each mission segment, shows that the time expended in the steady-state and maneuver mission segments was 65 and 6-1/2 percent, respectively. The fact that the CH-47A is primarily a cargo and personnel carrier not requiring extensive maneuvering explains the relatively short time spent in the maneuver mission segment. With a distribution similar to that shown in Figure 2, Figure 3 shows for each gross weight range the percentage of time spent in the mission segment. As apparent, the gross weight does not appreciably affect the time spent in each mission segment.

Figure 4, which gives the percentage of steady-state time spent in each gross weight range, shows that 54 percent of this time was spent in the 20,000- to 22,000-pound range The maximum takeoff gross weight in the recorded data is 33,923 pounds. As indicated in Figure 5, more than 40 percent of the steady-state flight time was spent at density altitudes below 1000 feet; no steady-state flight time was spent above 5000 feet.

Figure 6 shows that 88 percent of the steady-state time was spent in the rotor rpm range between 230 and 240 rpm. The theoretical maximum power-on rotor rpm permitted for this helicopter is 230 rpm. As shown

in Figure 7, the outside air temperature was between 50° F and 80° F more than 70 percent of the steady-state flight time and below 30° F only 3-1/2 percent of this time.

Figure 8 shows the percentage of steady-state time spent in rate-of-climb ranges. More than 97 percent of the time was within the range of -500 to +500 feet per minute. Although no rates less than -1500 feet per minute or more than +1500 feet per minute were recorded during the steady-state missions, higher descent or climb rates may have occurred during the transient mission segments.

As shown in Figure 9, which distributes the steady-state flight time among the various airspeed ranges, no airspeed exceeding 135 knots was recorded. For combinations of airspeed and altitude ranges, Figures 10 through 17 show the percentage of steady-state time spent in gross weight ranges. At the gross weight ranges between 20,000 and 24,000 pounds, which included nearly 75 percent of the total steady-state flight time, the distribution of time in the altitude-airspeed blocks is very uniform. Except for airspeeds below 40 knots, which occurred mostly below a 1000-foot density altitude, no given airspeed may be associated with a specific density altitude. At the higher gross weights, the steady-state flight time was spent mainly above 1000 feet. However, at gross weights above 32,000 pounds, no time was recorded at density altitudes higher than 2000 feet. For gross weights above 24,000 pounds, only 10.8 minutes of steady-state flight time was recorded at airspeeds above 125 knots. Since the airspeed in more than 59 percent of the steady-state flight time was between 60 and 100 knots, the normal cruise airspeed for the CH-47 is obviously within this range.

The exceedance curves in Figures 18, 19, and 20, which include both positive and negative increments, show the number of hours to reach or exceed a given incremental maneuver load factor. These figures represent the composite data and mission segment and gross weight breakdowns. Although the steady-state and descent mission segments incurred the highest values, the maneuver mission segment had the highest frequency of values. The high maneuver incremental load factors occurred at gross weights below 22,000 pounds. While the steady-state mission segment exceedance curves for positive and negative increments are very similar, the frequency of the positive value is slightly higher. Since the number of data points at gross weights above 24,000 pounds is small, the plots at these weights should be considered as trends only. The curve for the composite data in Figure 20 shows that the positive incremental values occurred more frequently than the negative values. Again, the portion of the curve at the larger incremental values where few points were plotted should be interpreted as revealing a trend only. Figure 21

shows a tabulation and a plot of maneuver normal load factors versus rotor tip speeds.

Figures 22, 23, and 24 show exceedance curves for incremental gust normal load factors. As with the figures for maneuver values, these figures give curves for the composite data and the mission segment and gross weight breakdowns. The close similarity of the gust spectra for the ascent and descent missions was due to the low altitudes generally prevailing during these missions. A comparison of the data shows that the steady-state mission segment generally had a more severe gust environment. However, this observation should be qualified somewhat, since some gusts occurring during the transient mission segments may have been lost because of the editing criterion of identifying a peak as being caused by a maneuver whenever a stick position trace deviated before an acceleration peak. As evidenced in the gross weight breakdown, the gross weight variation did not significantly affect the gust spectrum. This variation, however, was very limited in the extreme weight ranges, since most of the time was spent in the 20,000- to 24,000-pound gross weight range. Figure 25 is a tabulation and a plot of gust normal load factors versus indicated airspeed ranges.

Of interest is the comparison of the gust spectrum for the CH-47A tandem-rotor helicopter with that for the CH-54A single-rotor helicopter. Data for the two spectra were obtained generally during the same period and over the same geographic area. Both helicopters have gross weights of over 20,000 pounds, the maximums for the CH-47A and CH-54A being about 38,000 and 45,000 pounds, respectively. The comparison of the composite data exceedance curve in Figure 22 for the CH-47A with that in Figure 26 for the CH-54A (reported in Reference 3) shows that the CH-54A incurred a slightly higher frequency of lower magnitude gusts.

CONCLUSIONS

It is concluded that:

1. The significant load spectrum derived from the CH-47A flight loads data evidences the technical feasibility of conducting flight loads programs on helicopters.

2. The correlation of the gust- and maneuver-induced load factors demonstrates the practicality of identifying the cause of acceleration peaks according to the characteristic patterns in the stick position traces.

3. None of the instrumented CH-47A helicopters exceeded the design load factor limit of 2.67, since the highest recorded factor was 1.62.

REFERENCES

1. OV-1A Mohawk Flight Loads Investigation Program, USAAVLABS Technical Report 66-6, U. S. Army Aviation Materiel Laboratories, Fort Eustis, Virginia, January 1966.

2. UH-1B Helicopter Flight Loads Investigation Program, USAAVLABS Technical Report 66-46, U. S. Army Aviation Materiel Laboratories, Fort Eustis, Virginia, May 1966.

3. CH-54A Skycrane Helicopter Flight Loads Investigation Program, USAAVLABS Technical Report 66-58, U. S. Army Aviation Materiel Laboratories, Fort Eustis, Virginia, June 1966.

4. CH-47A Category II Stability and Control Tests, Technical Documentary Report 64-24, Air Force Flight Test Center, Edwards Air Force Base, California, October 1964.

5. Von Mises, Richard, Theory of Flight, McGraw-Hill Book Company, Inc., New York, New York, 1945, p. 11.

DISTRIBUTION

US Army Materiel Command	5
US Army Aviation Materiel Command	6
US Army Aviation Materiel Laboratories	29
US Army R&D Group (Europe)	2
US Army Limited War Laboratory	1
US Army Human Engineering Laboratories	1
US Army Research Office-Durham	1
US Army Test and Evaluation Command	1
Plastics Technical Evaluation Center	1
US Army Medical R&D Command	1
US Army Engineer Waterways Experiment Station	1
US Army Combat Developments Command, Fort Belvoir	2
US Army Combat Developments Command Experimentation Command	3
US Army War College	1
US Army Command and General Staff College	1
US Army Aviation School	1
US Army Infantry Center	2
US Army Tank-Automotive Center	2
US Army Aviation Maintenance Center	2
US Army Armor and Engineer Board	1
US Army Electronics Command	2
US Army Aviation Test Activity	2
Air Force Flight Test Center, Edwards AFB	2
US Army Field Office, AFSC, Andrews AFB	1
Air Force Flight Dynamics Laboratory, Wright-Patterson AFB	1
Systems Engineering Group (RTD), Wright-Patterson AFB	3
Bureau of Ships, DN	1
Bureau of Naval Weapons, DN	6
Chief of Naval Research	5
David Taylor Model Basin	1
Commandant of the Marine Corps	1
Testing and Development Division, US Coast Guard	1
Ames Research Center, NASA	1
Lewis Research Center, NASA	1
Manned Spacecraft Center, NASA	1
NASA Representative, Scientific and Technical Information Facility	2
NAFEC Library (FAA)	2
US Army Aviation Human Research Unit	2
US Army Board for Aviation Accident Research	1

Bureau of Safety, Civil Aeronautics Board	2
US Naval Aviation Safety Center, Norfolk	1
Federal Aviation Agency, Washington, D. C.	1
Bureau of Flight Standards, FAA	1
Civil Aeromedical Research Institute, FAA	2
The Surgeon General	1
Defense Documentation Center	20

APPENDIX I

ILLUSTRATIONS

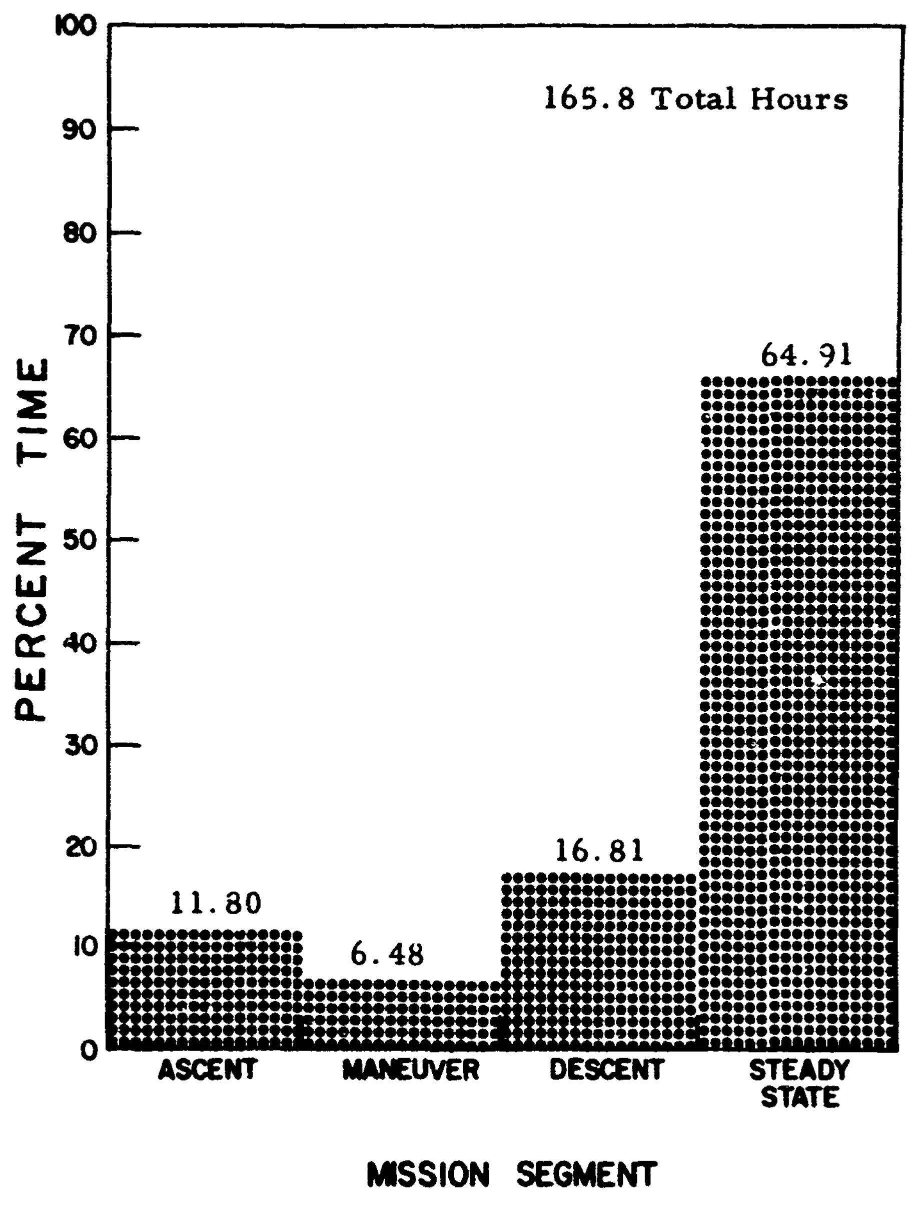


Figure 2. Percentage of Total Flight Time in Each Mission Segment

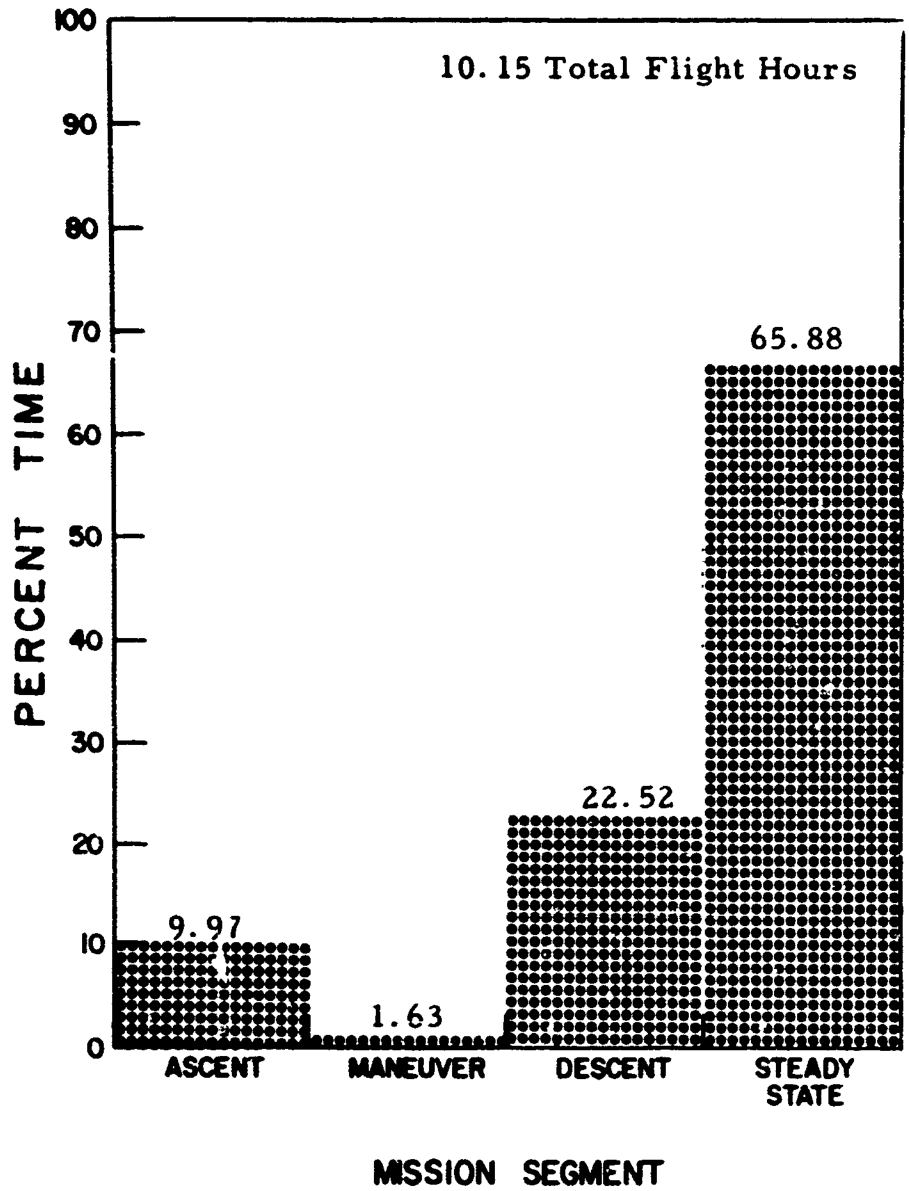


Figure 3. Flight Time in Each Gross Weight Range Broken Down by Percentage of Time in Each Mission Segment

(a) Gross Weight Less Than 20,000 Pounds

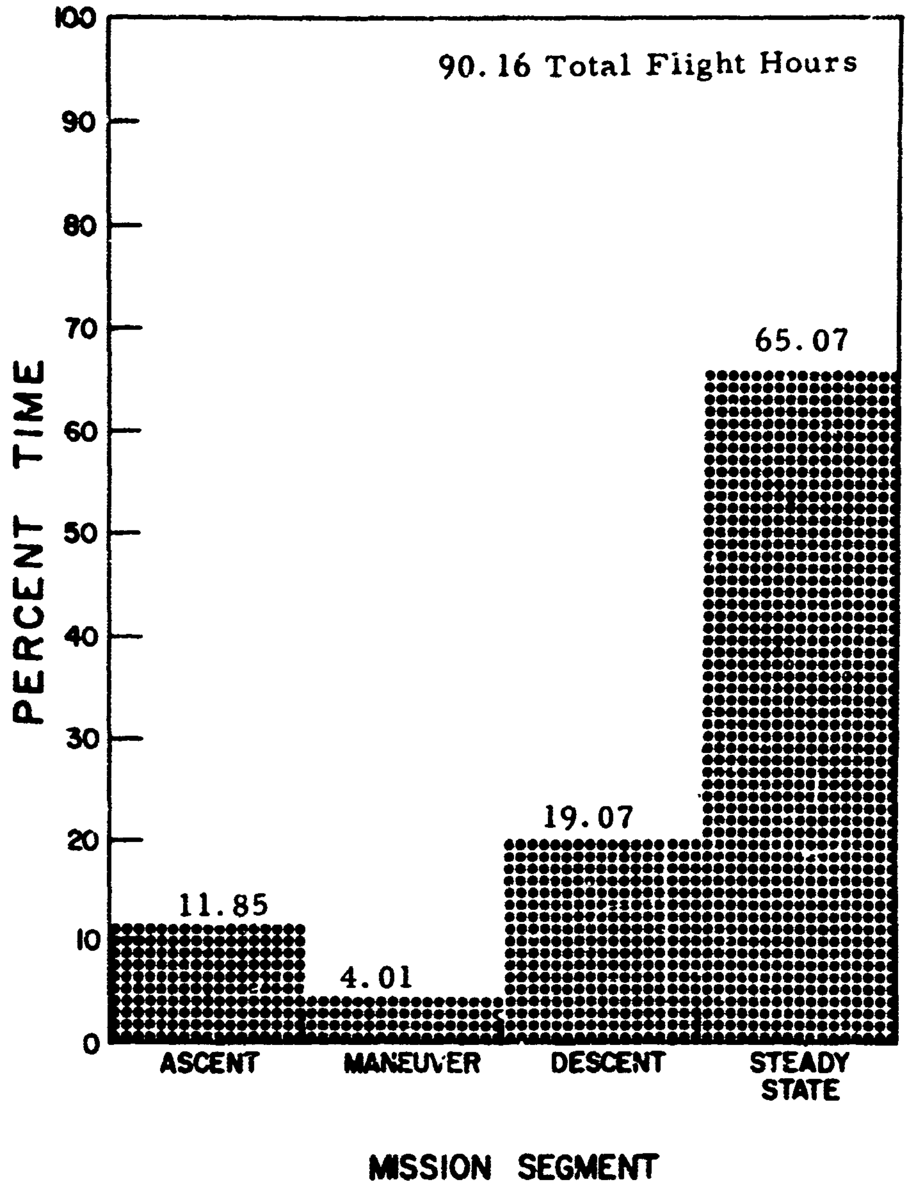


Figure 3. (b) Gross Weight 20,000 to 22,000 Pounds

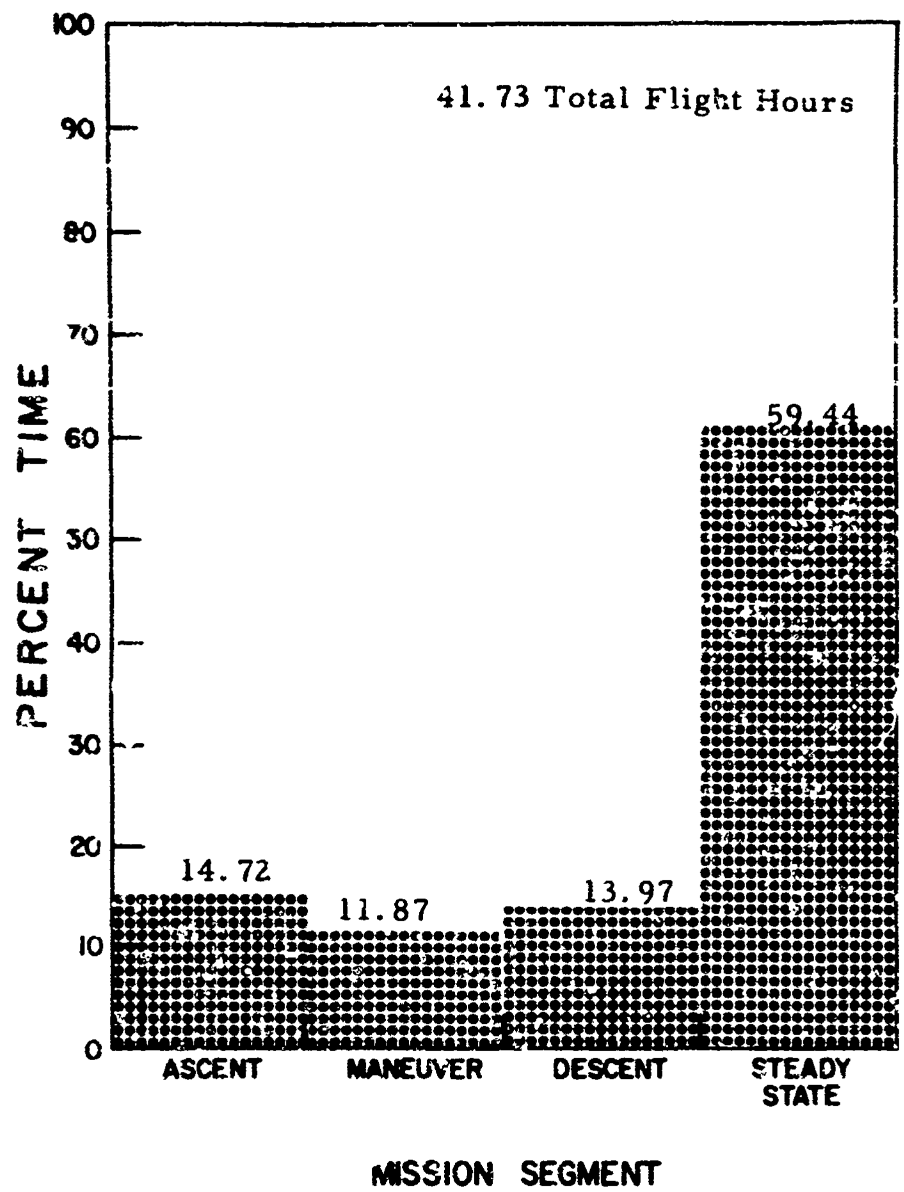


Figure 3. (c) Gross Weight 22,000 to 24,000 Pounds

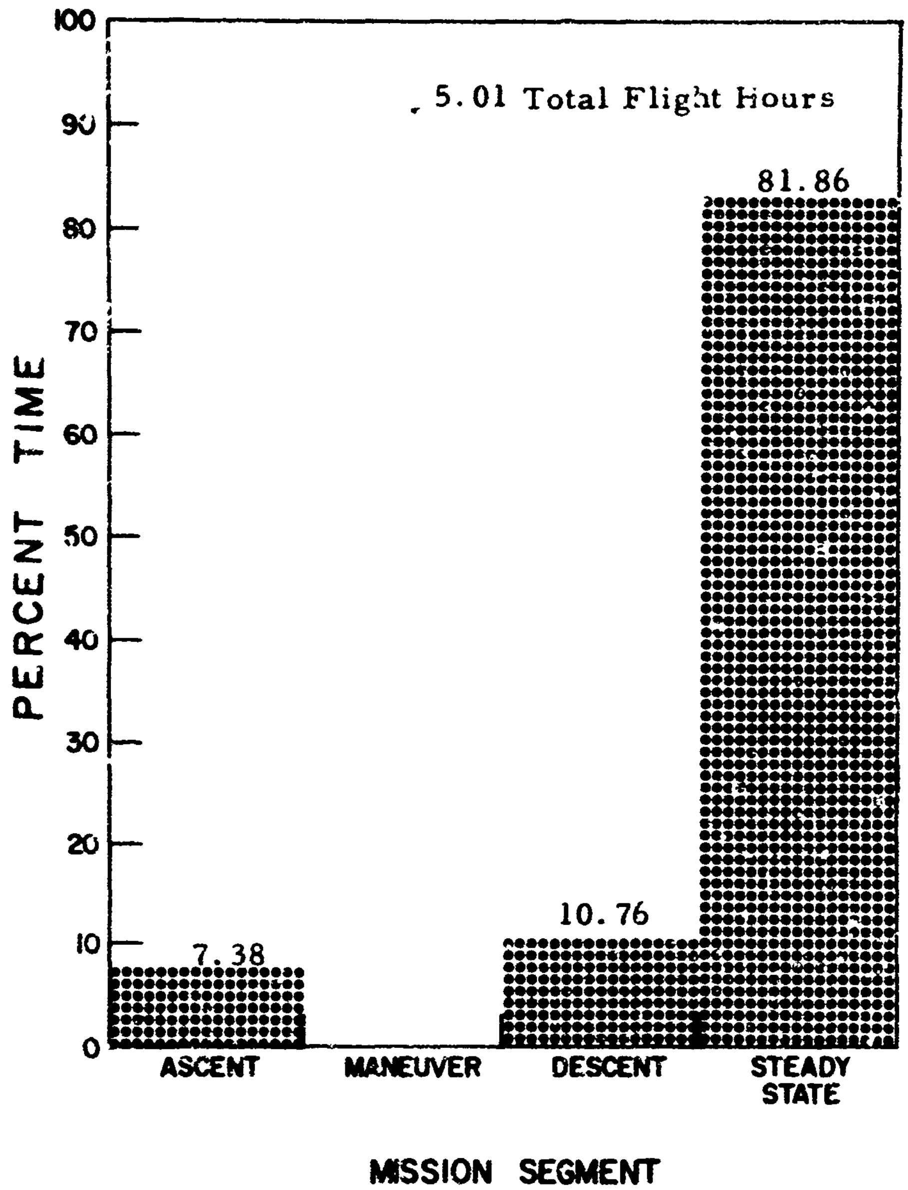


Figure 3. (d) Gross Weight 24,000 to 26,000 Pounds

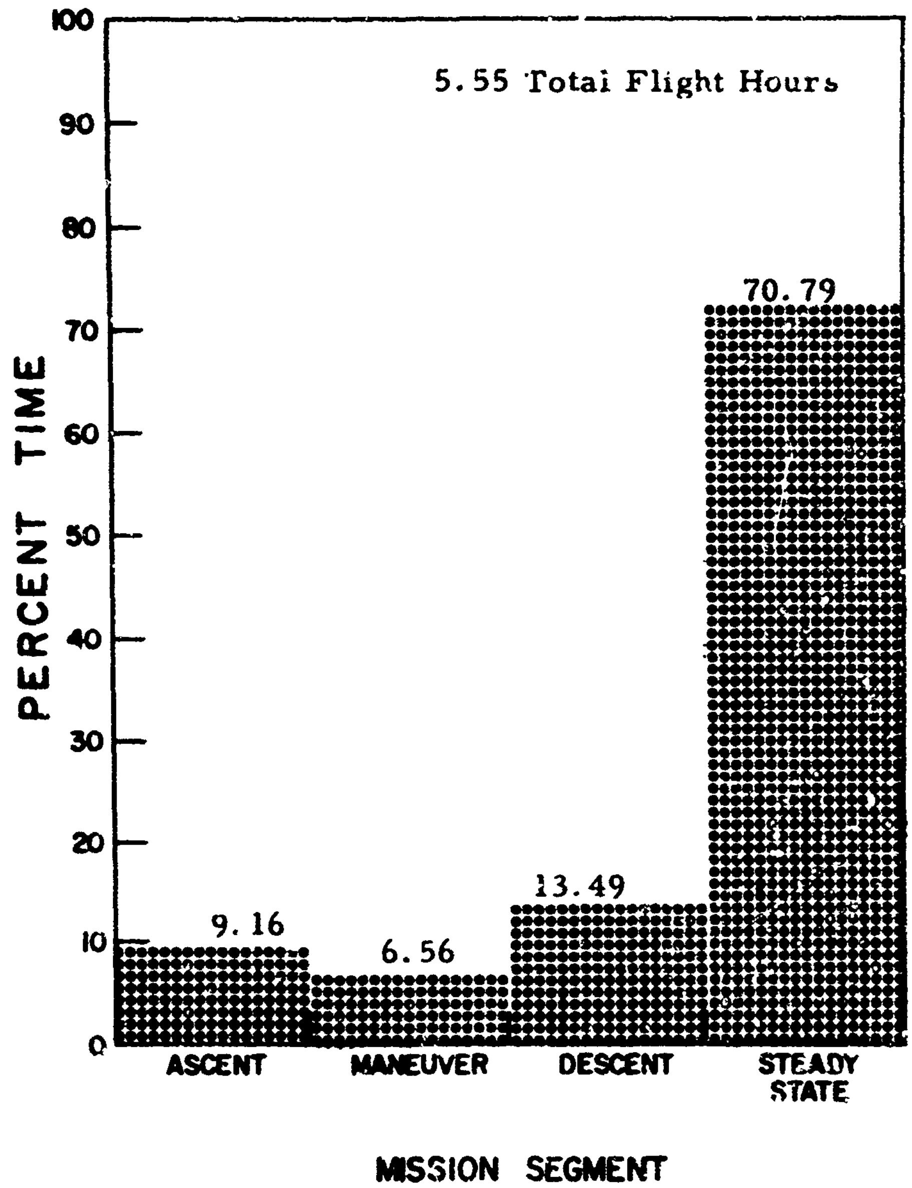


Figure 3. (e) Gross Weight 26,000 to 28,000 Pounds

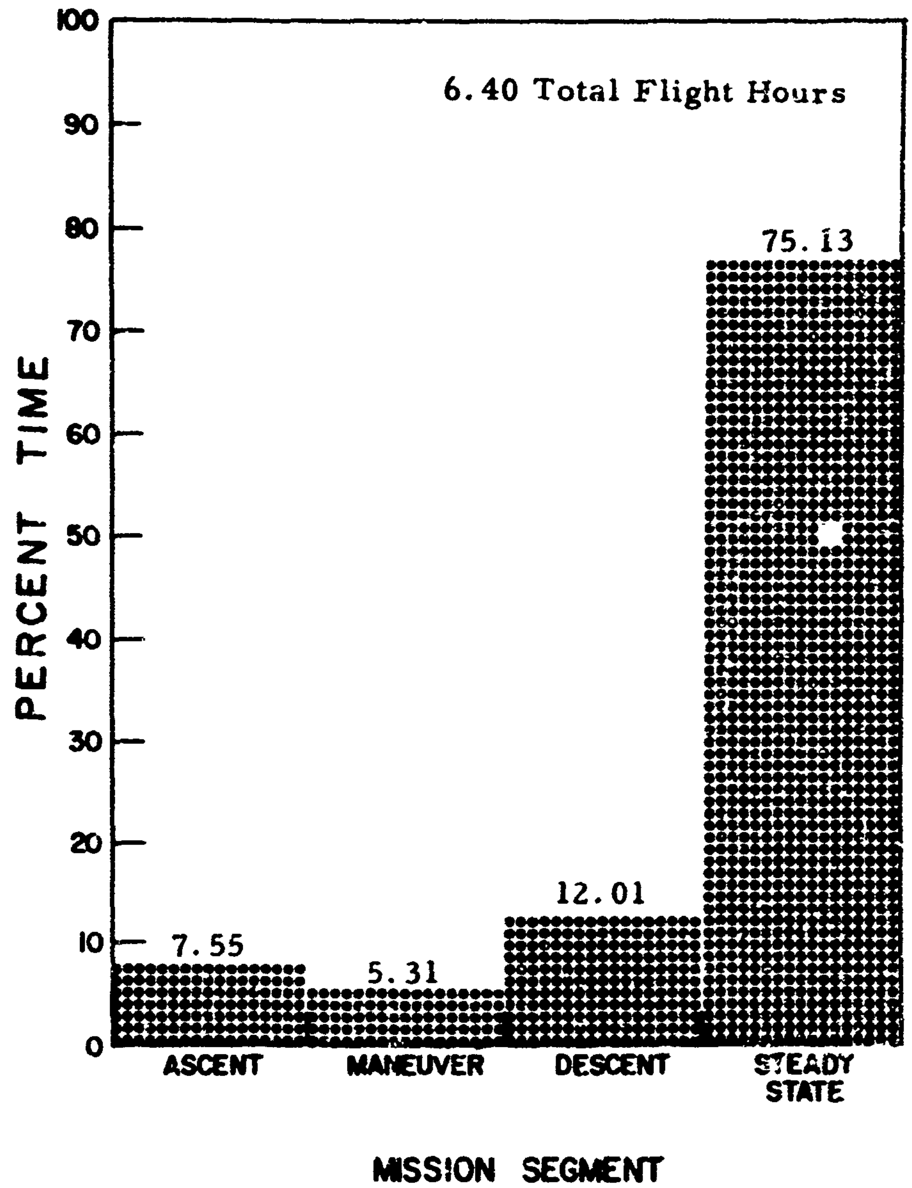


Figure 3. (f) Gross Weight 28,000 to 30,000 Pounds

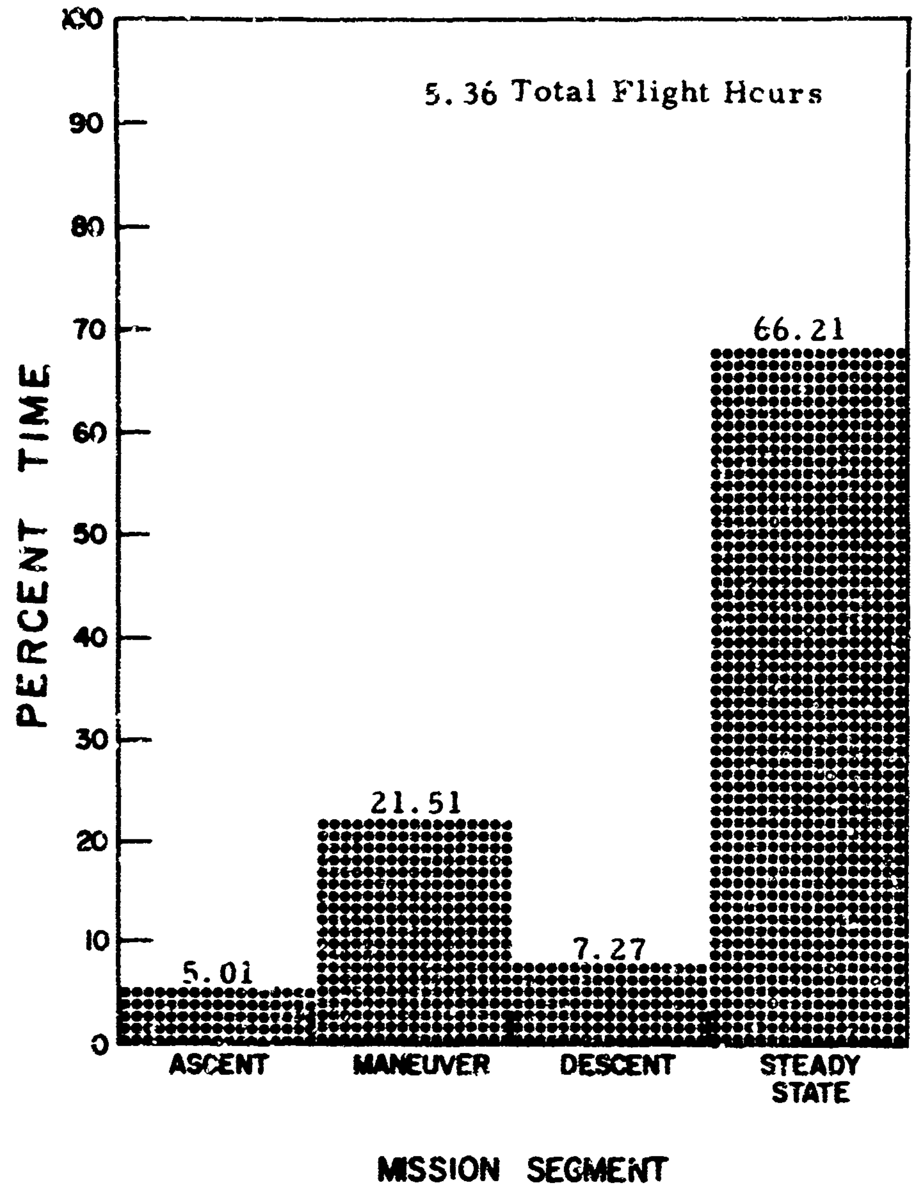


Figure 3. (g) Gross Weight 30,000 to 32,000 Pounds

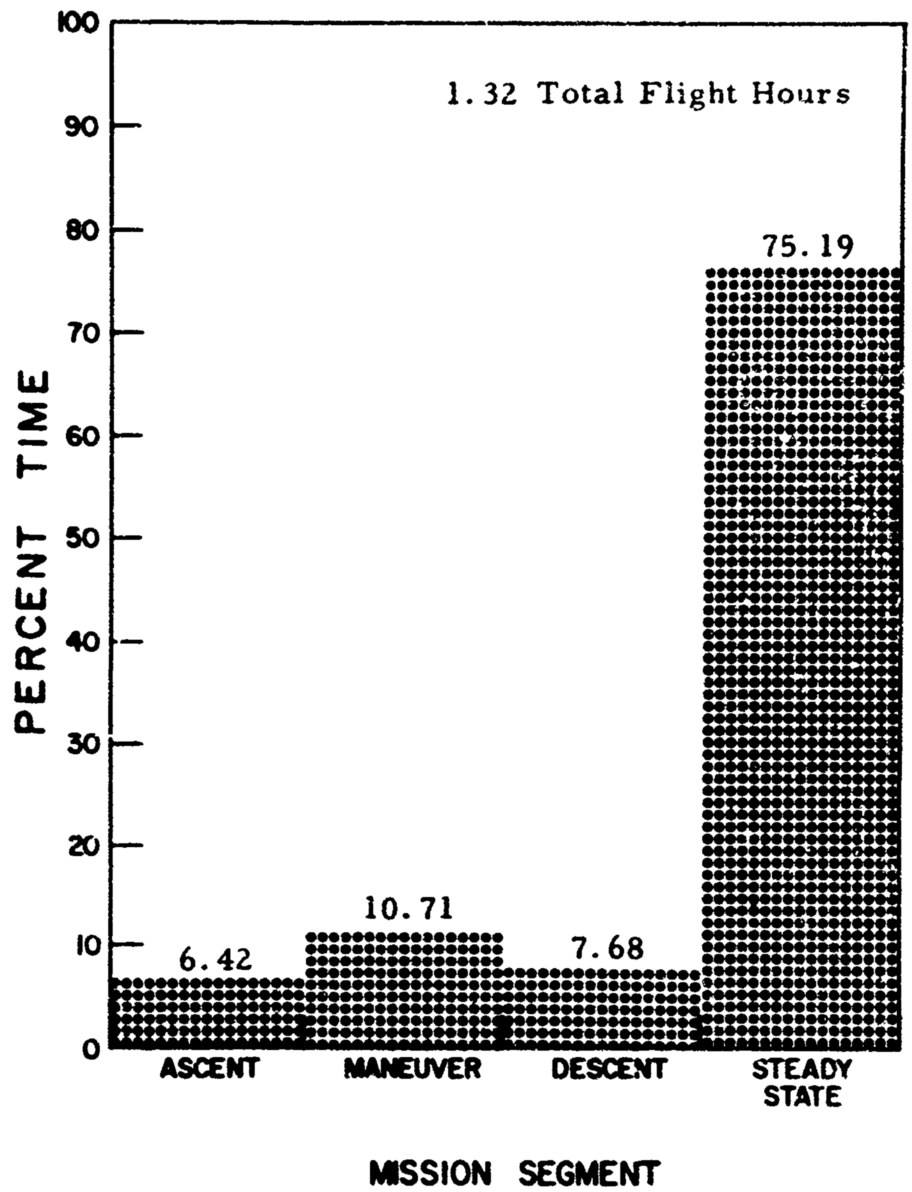


Figure 3. (h) Gross Weight 32,000 to 34,000 Pounds

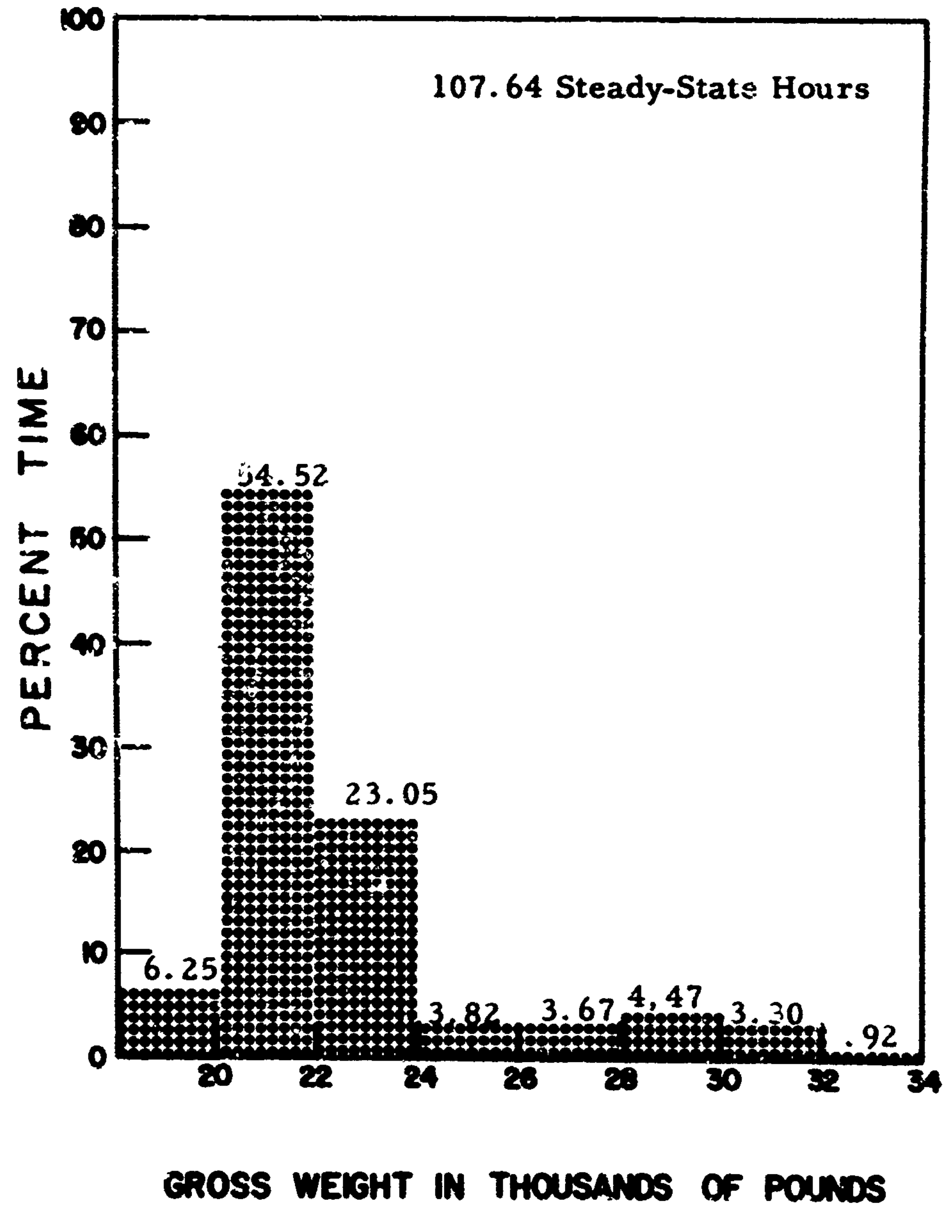


Figure 4. Percentage of Steady-State Mission Segment Flight Time in Each Gross Weight Range

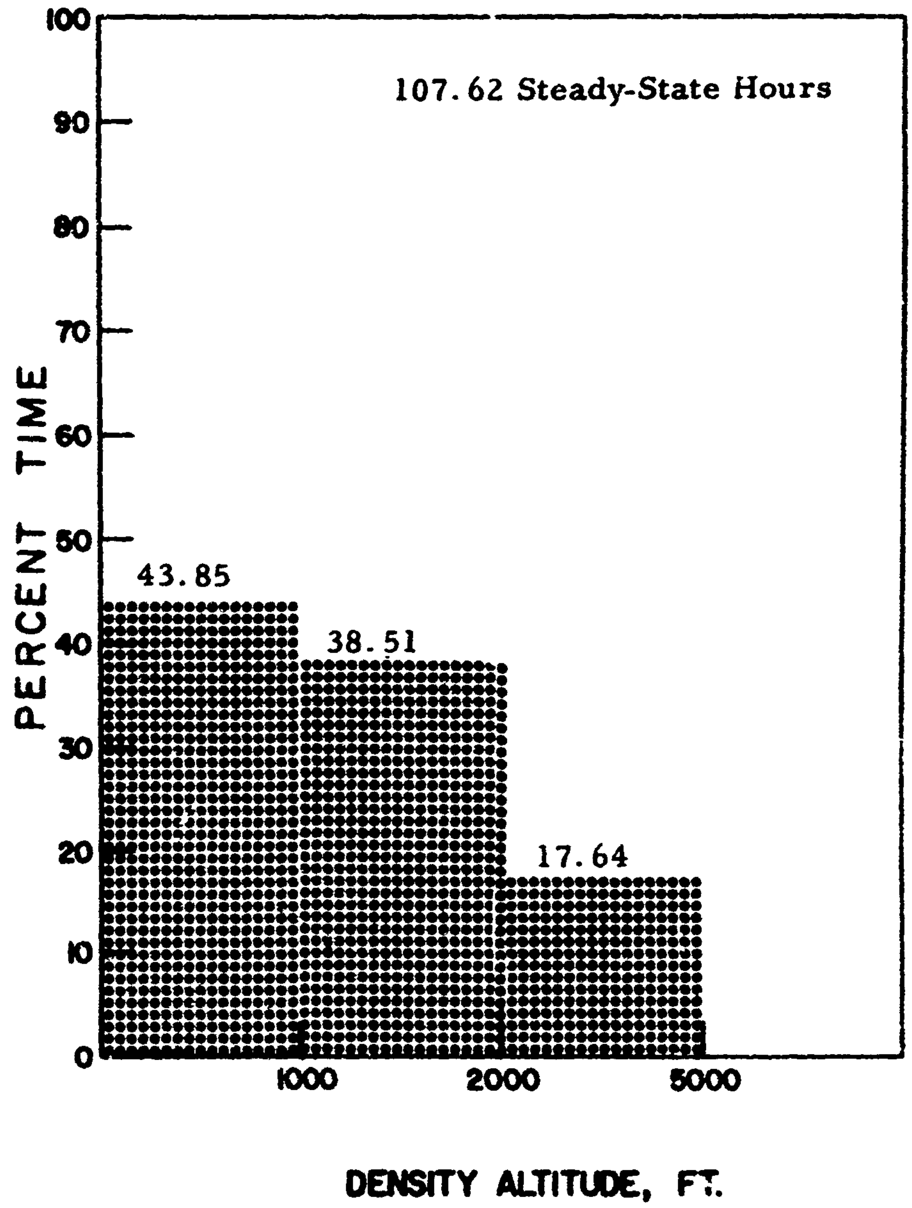


Figure 5. Percentage of Steady-State Mission Segment Flight Time in Each Density Altitude Range

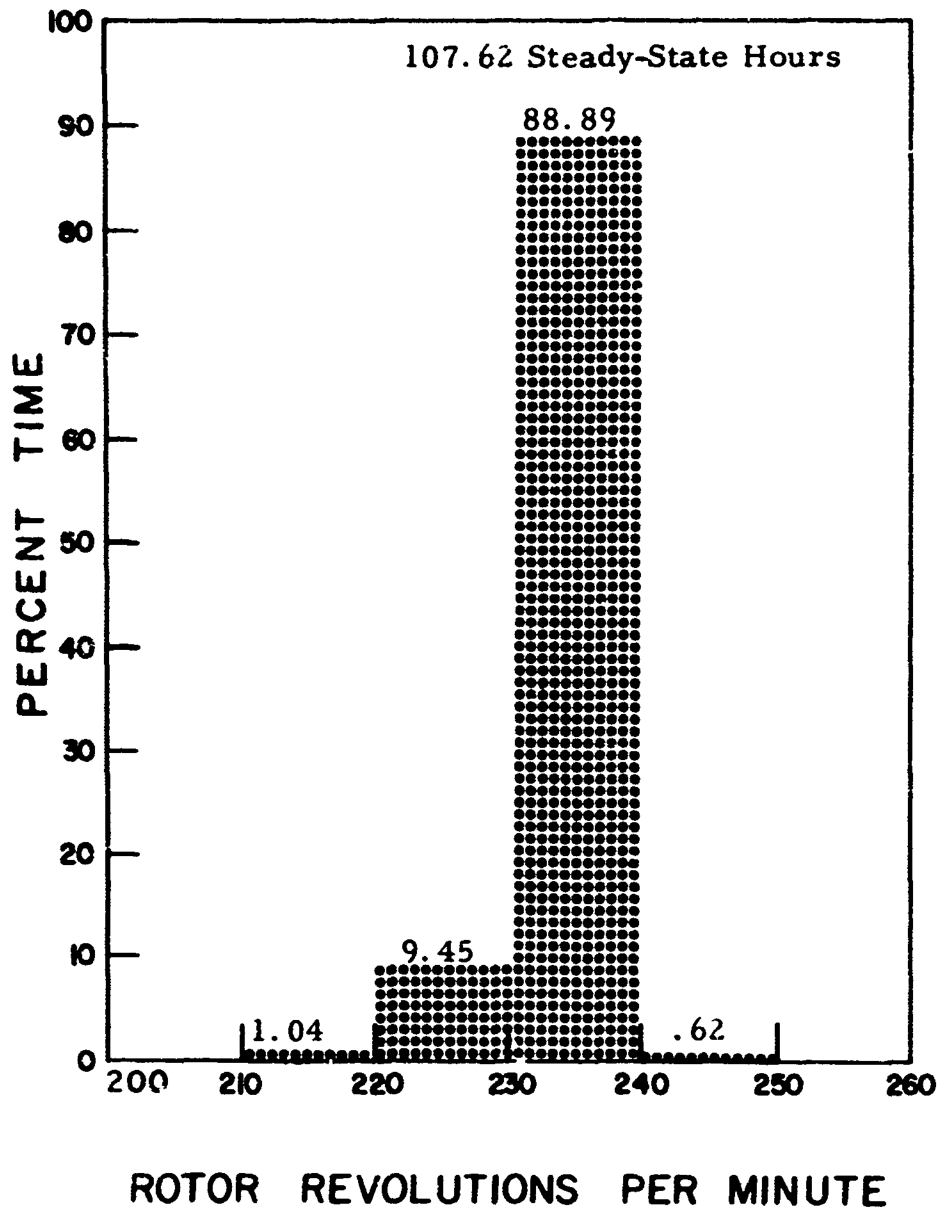


Figure 6. Percentage of Steady-State Mission Segment Flight Time in Each Rotor RPM Range

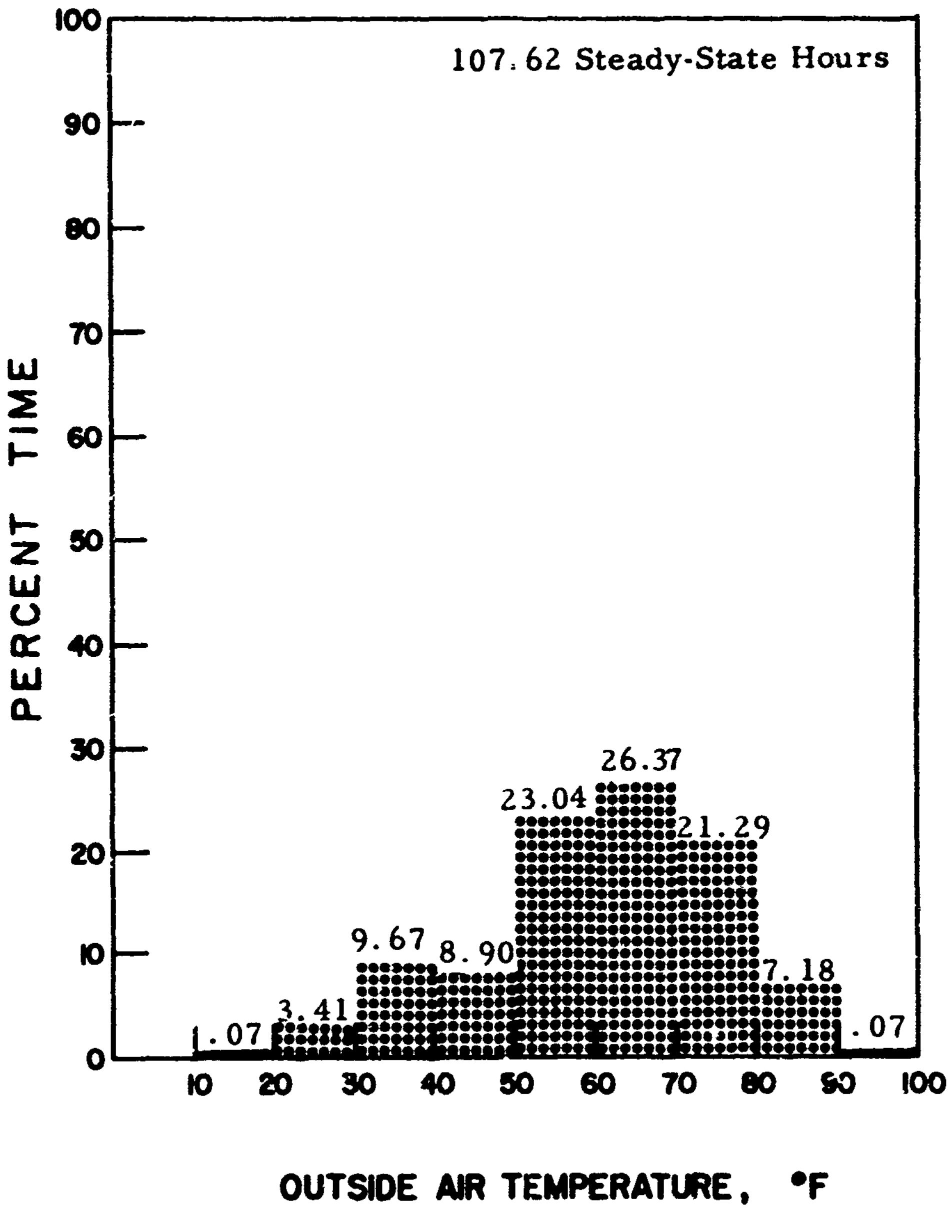


Figure 7. Percentage of Steady-State Mission Segment Flight Time in Each Outside Air Temperature Range

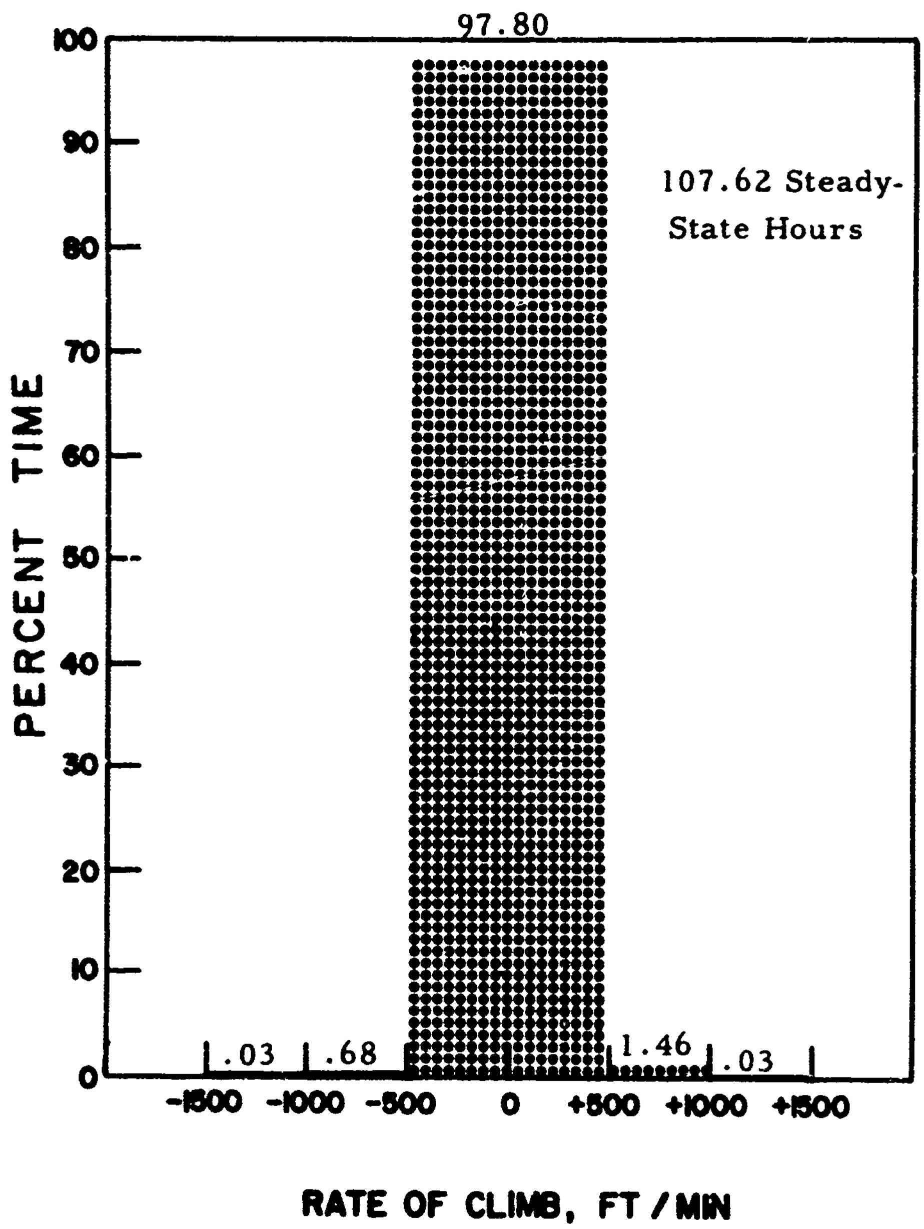


Figure 8. Percentage of Steady-State Mission Segment Flight Time in Each Rate of Climb Range

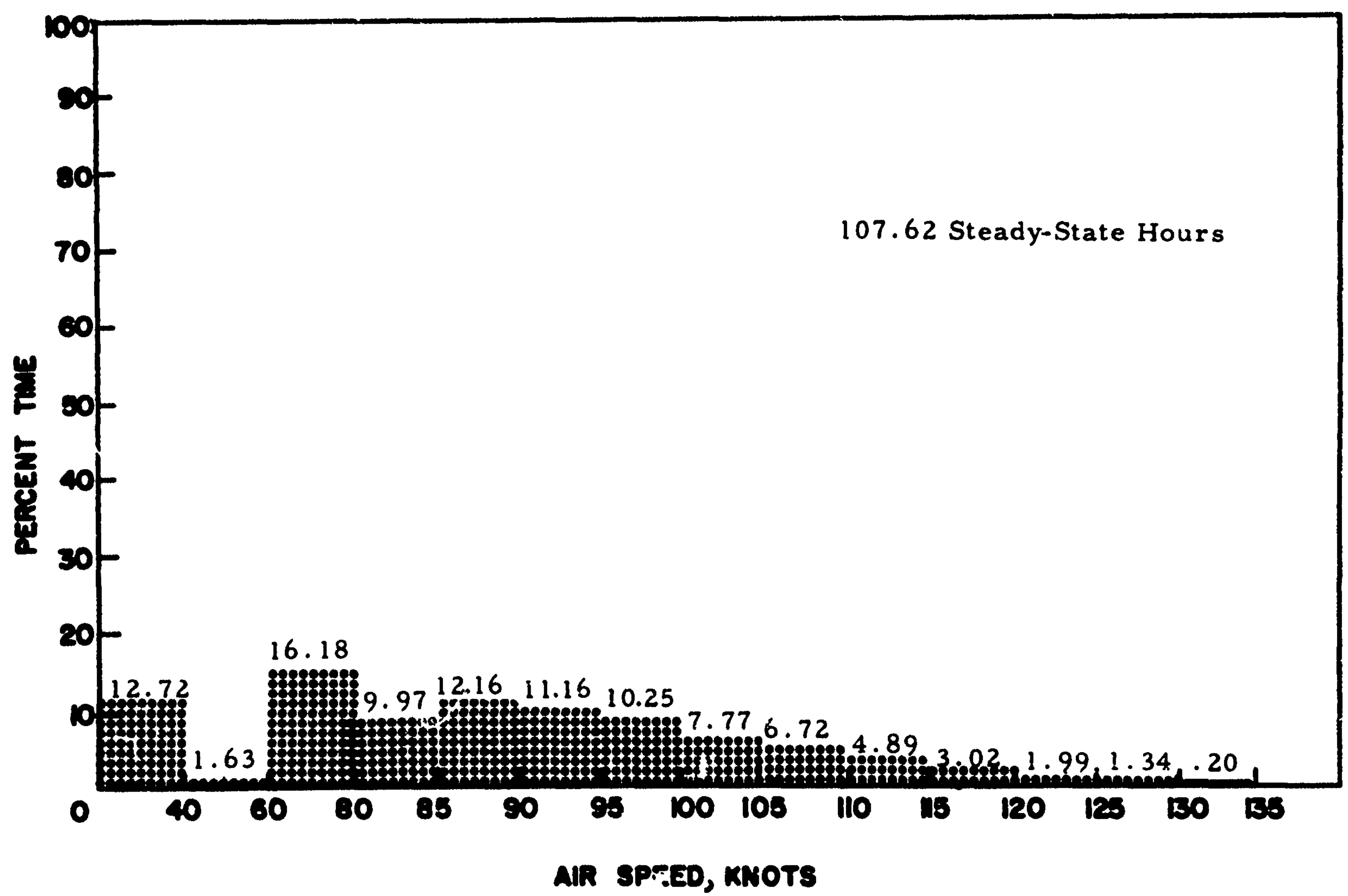


Figure 9. Percentage of Steady-State Mission Segment Flight Time in Each Airspeed Range

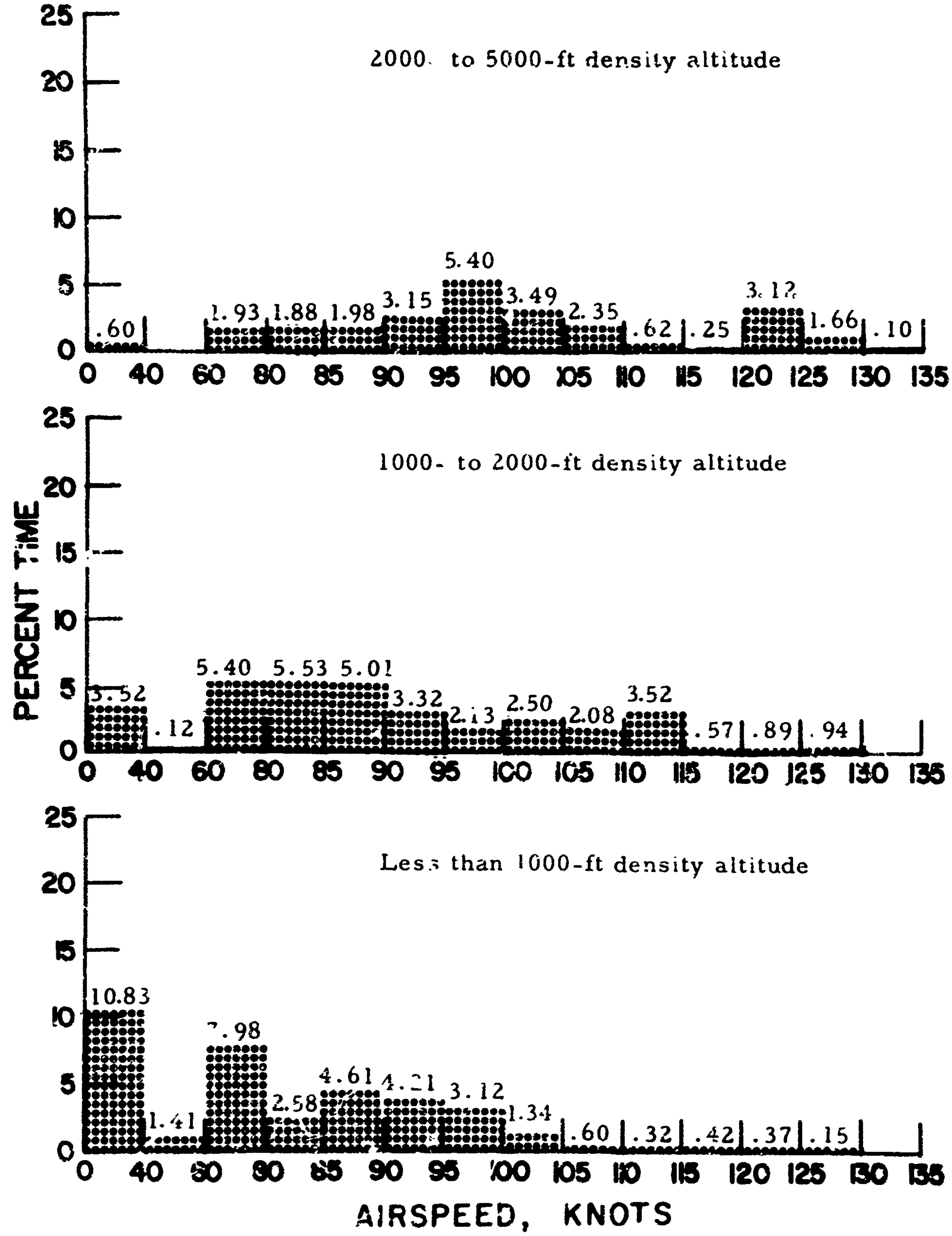


Figure 10. Time in Steady-State Mission Segment in Less Than 20,000-Pound Gross Weight Range Broken Down by Percentage of Time in Each Density Altitude-Airspeed Range

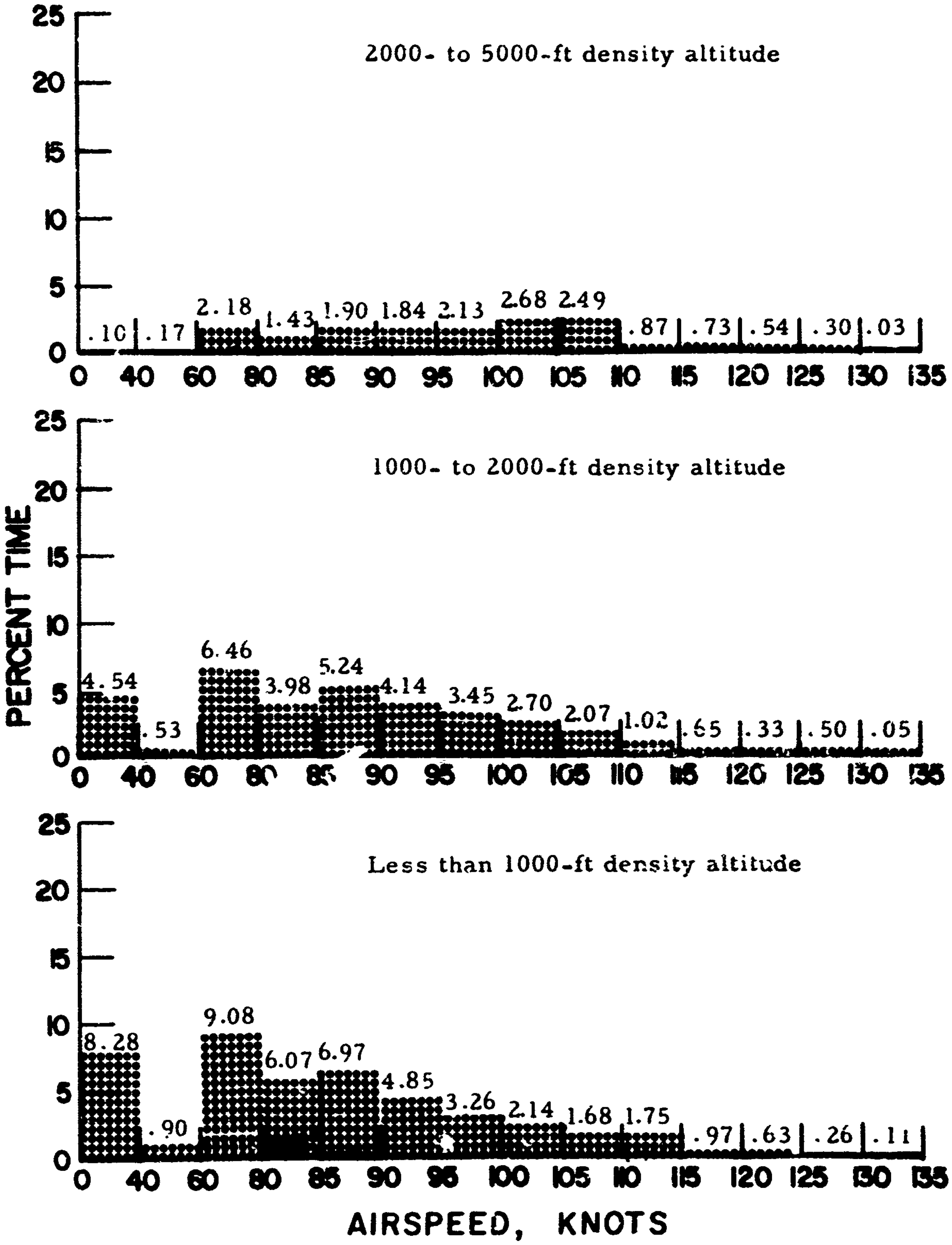


Figure 11. Time in Steady-State Mission Segment in 20,000- to 22,000-Pound Gross Weight Range Broken Down by Percentage of Time in Each Density Altitude-Airspeed Range

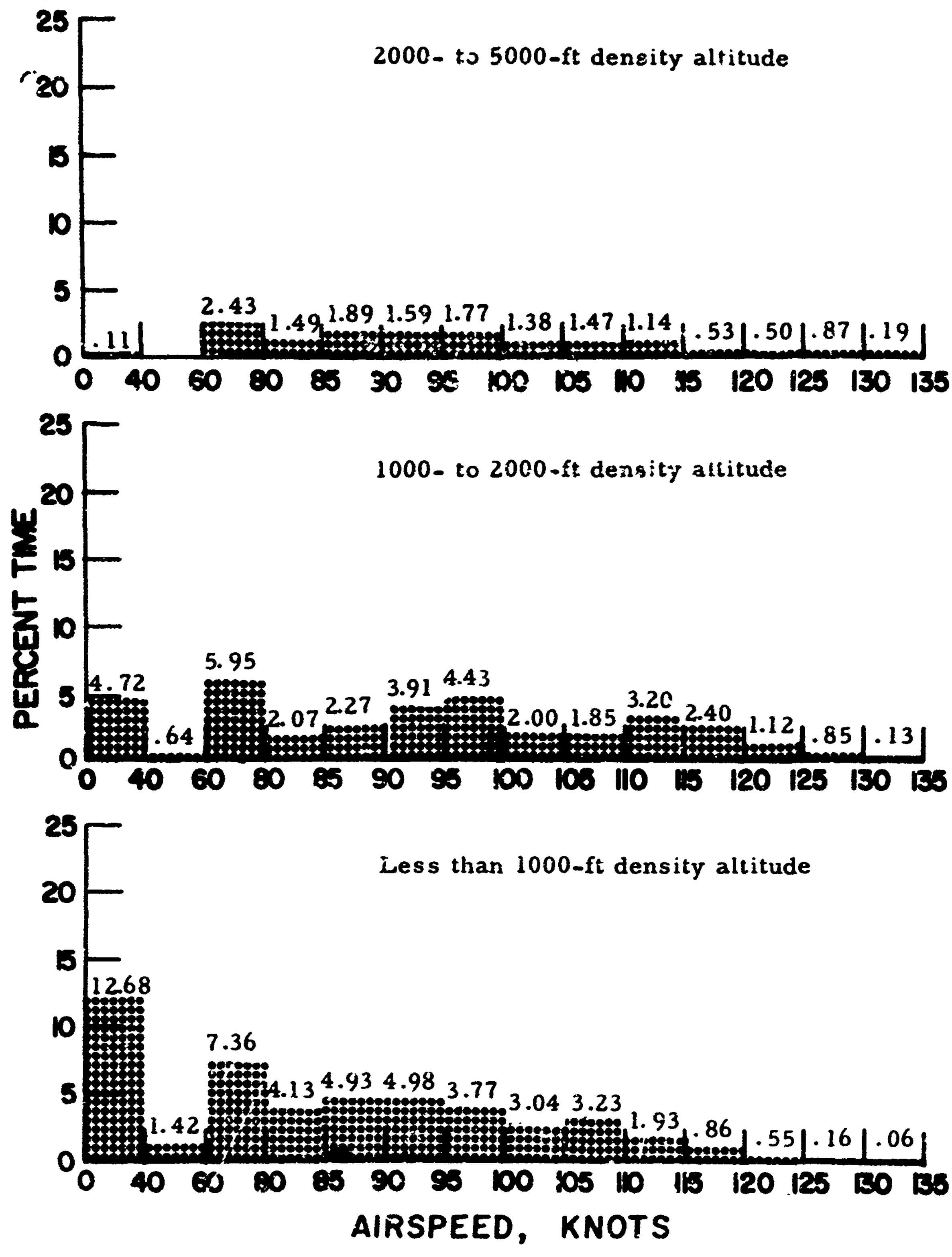


Figure 12. Time in Steady-State Mission Segment in 22,000- to 24,000-Pound Gross Weight Range Broken Down by Percentage of Time in Each Density Altitude-Airspeed Range

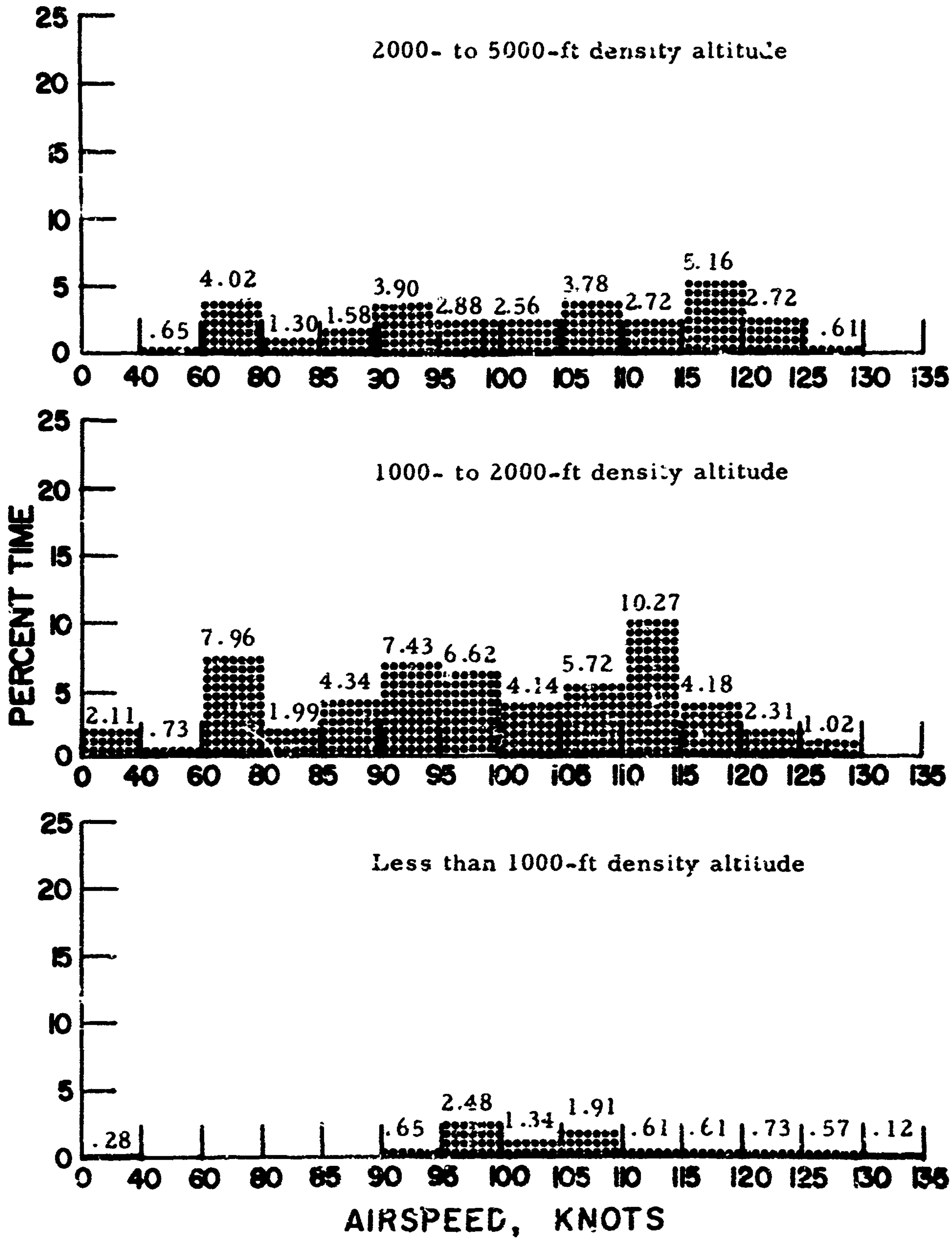


Figure 13. Time in Steady-State Mission Segment in 24,000- to 26,000-Pound Gross Weight Range Broken Down by Percentage of Time in Each Density Altitude-Airspeed Range

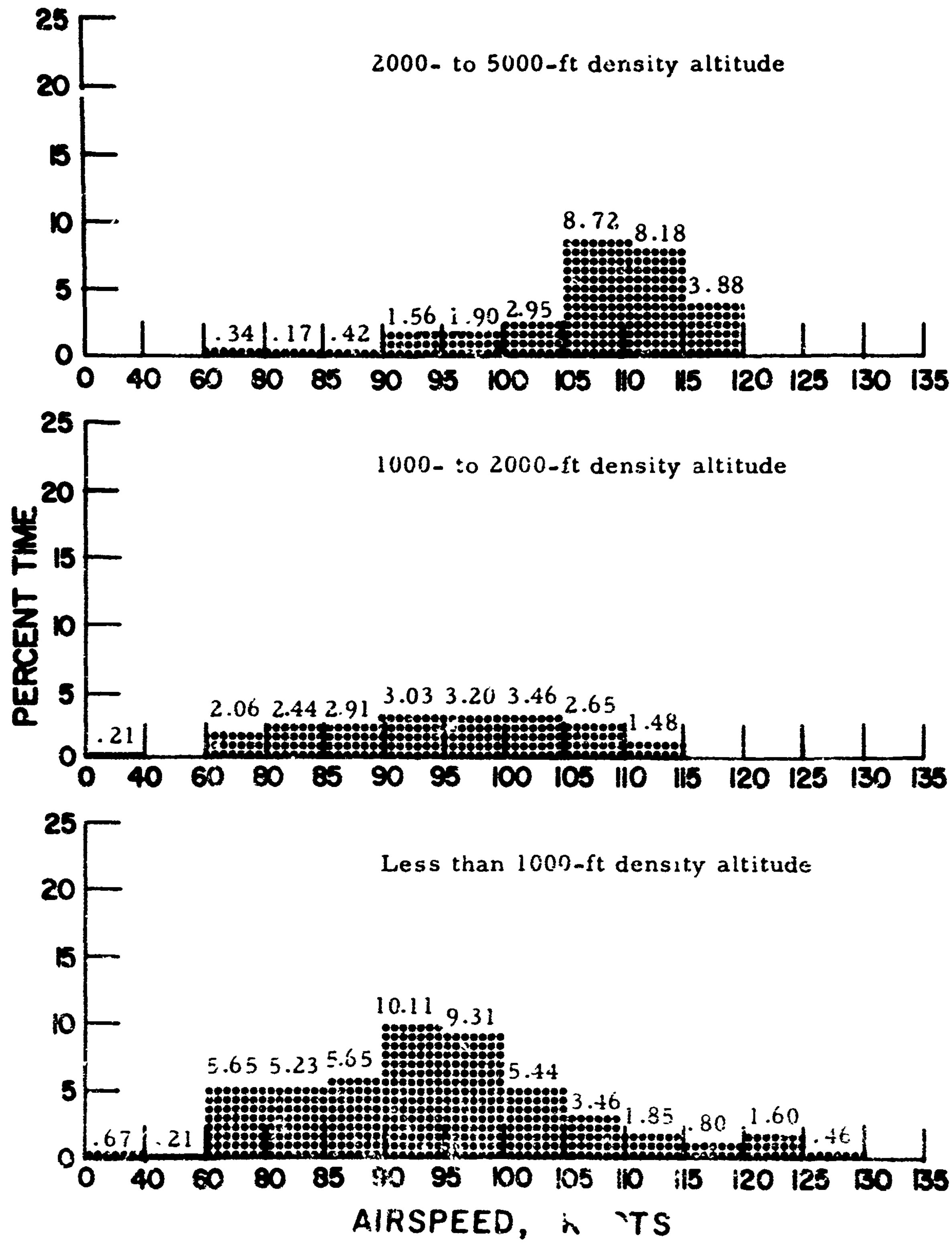


Figure 14. Time in Steady-State Mission Segment in 26,000- to 28,000-Pound Gross Weight Range Broken Down by Percentage of Time in Each Density Altitude-Airspeed Range

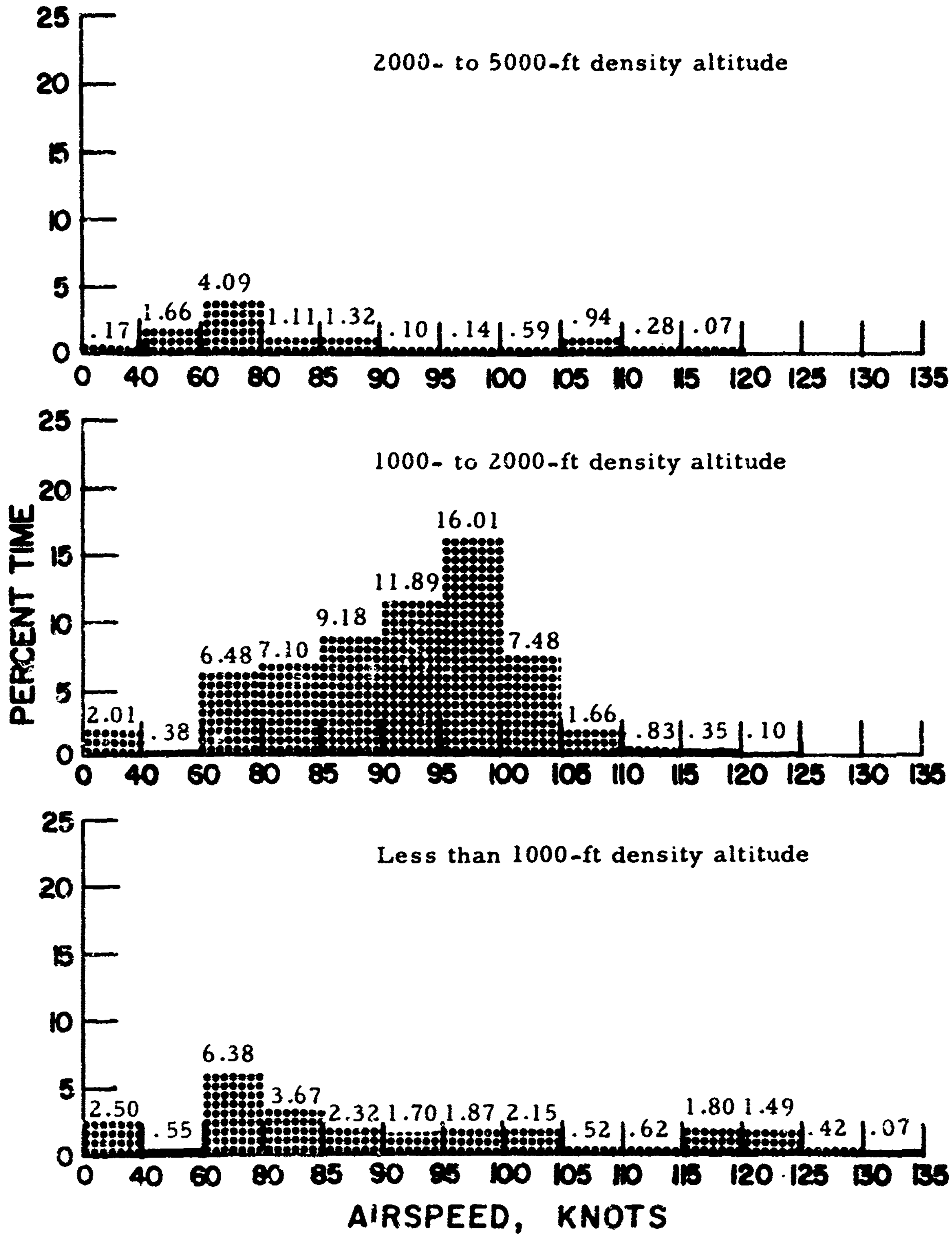


Figure 15. Time in Steady-State Mission Segment in 28,000- to 30,000-Pound Gross Weight Range Broken Down by Percentage of Time in Each Density Altitude-Airspeed Range

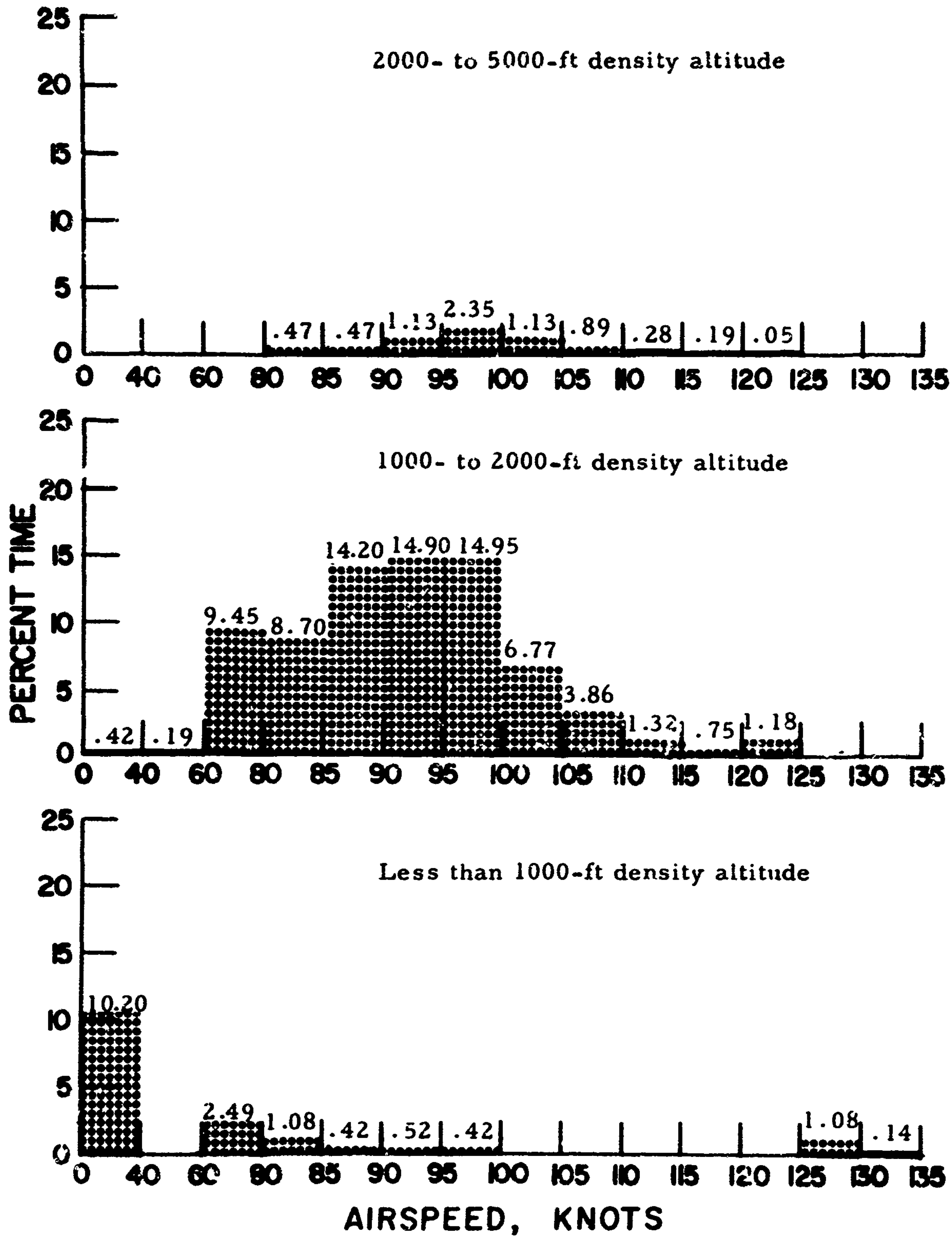


Figure 16. Time in Steady-State Mission Segment in 30,000- to 32,000-Pound Gross Weight Range Broken Down by Percentage of Time in Each Density Altitude-Airspeed Range

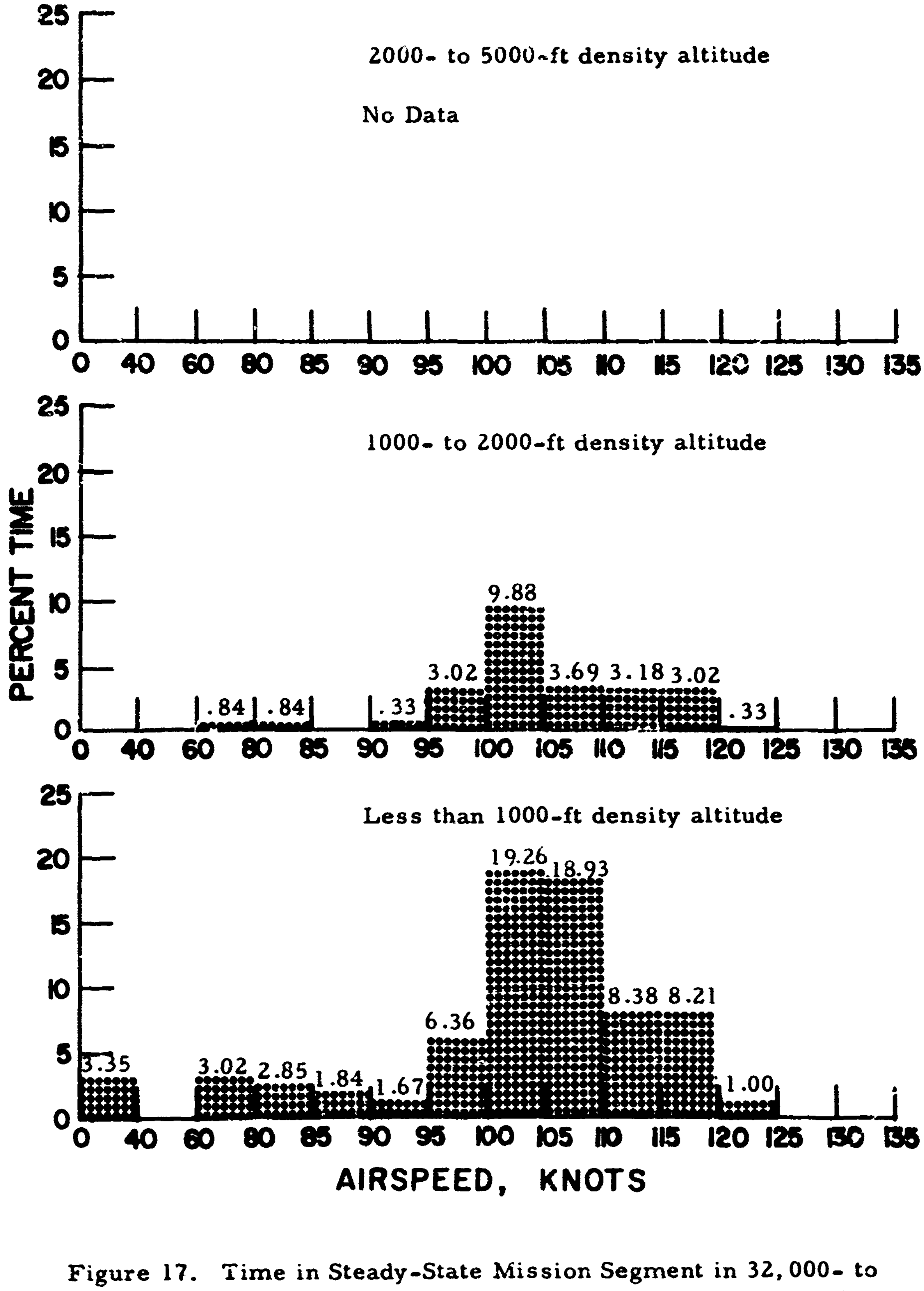


Figure 17. Time in Steady-State Mission Segment in 32,000- to 34,000-Pound Gross Weight Range Broken Down by Percentage of Time in Each Density Altitude-Airspeed Range

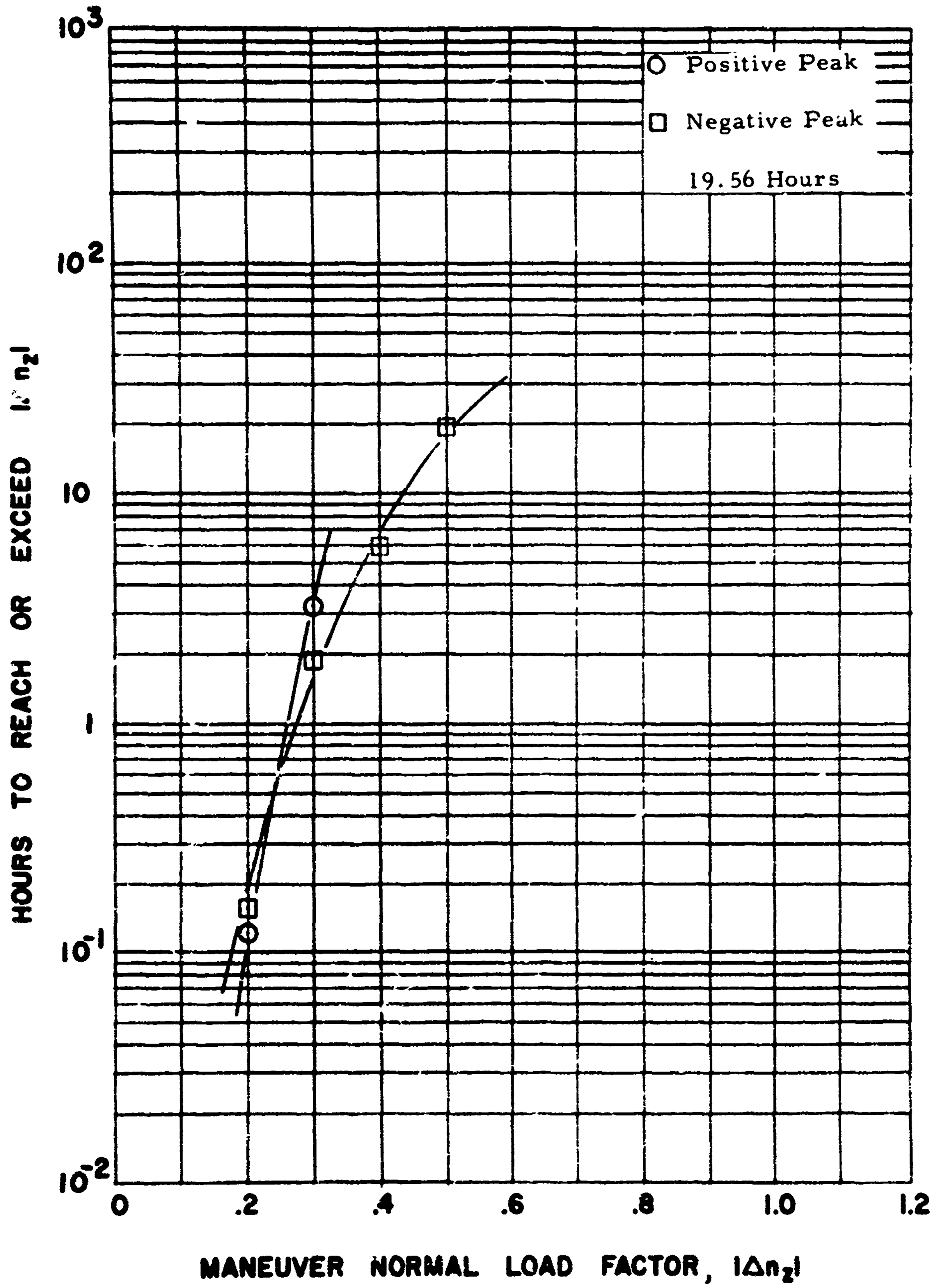


Figure 18. Exceedance Curves for Incremental Maneuver Normal Load Factor Peaks by Mission Segment

(a) Ascent Mission Segment

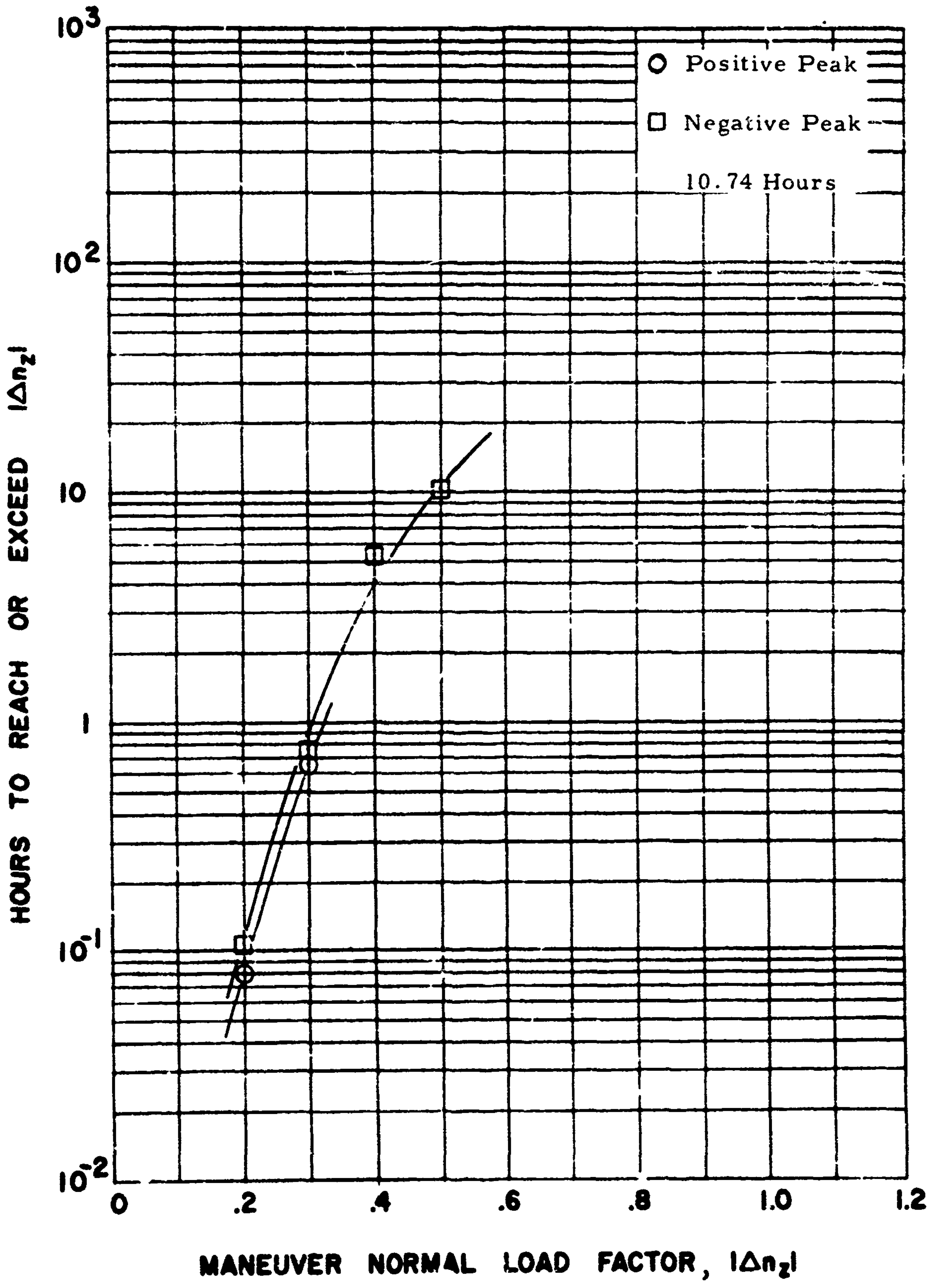


Figure 18. (b) Maneuver Mission Segment

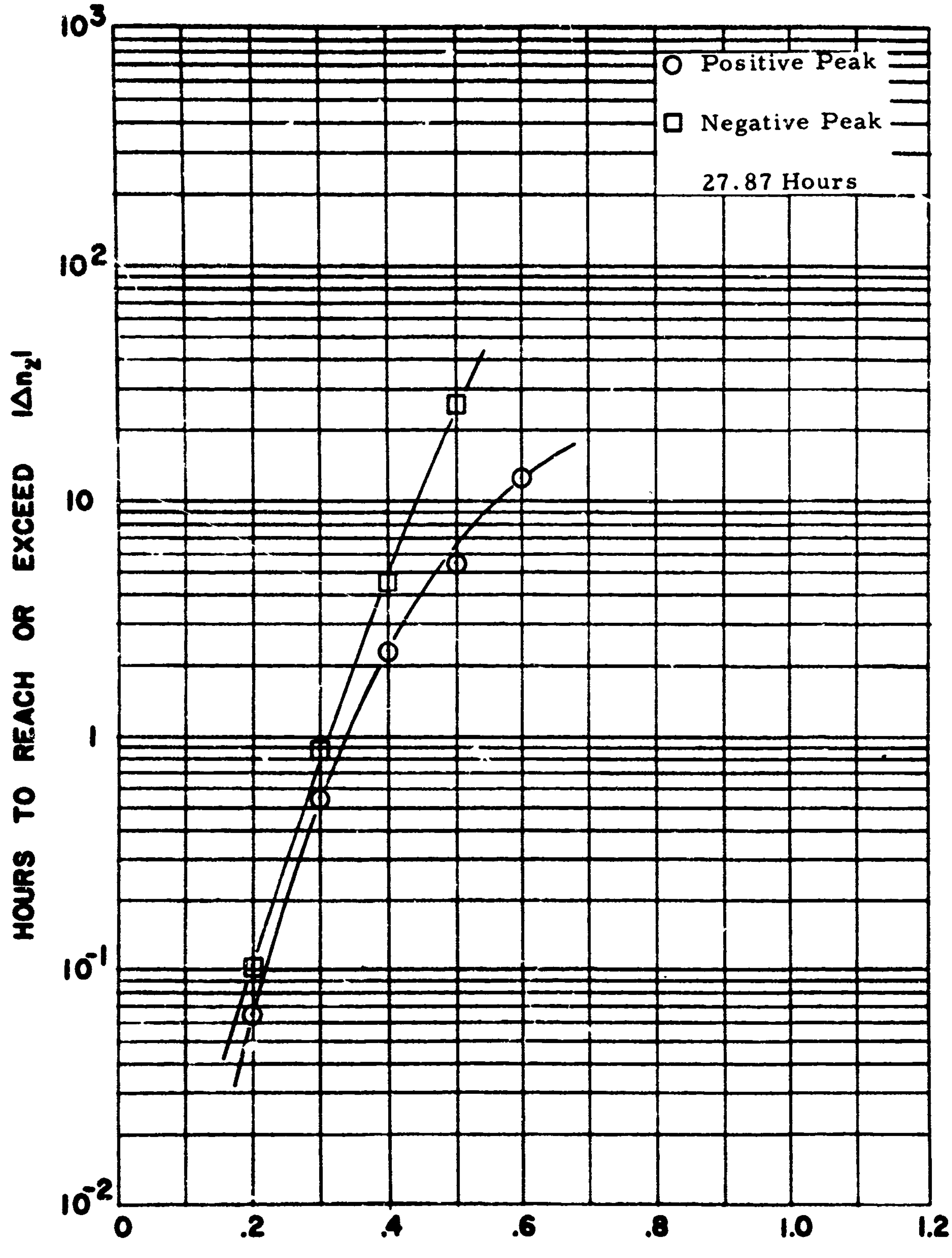


Figure 18. (c) Descent Mission Segment

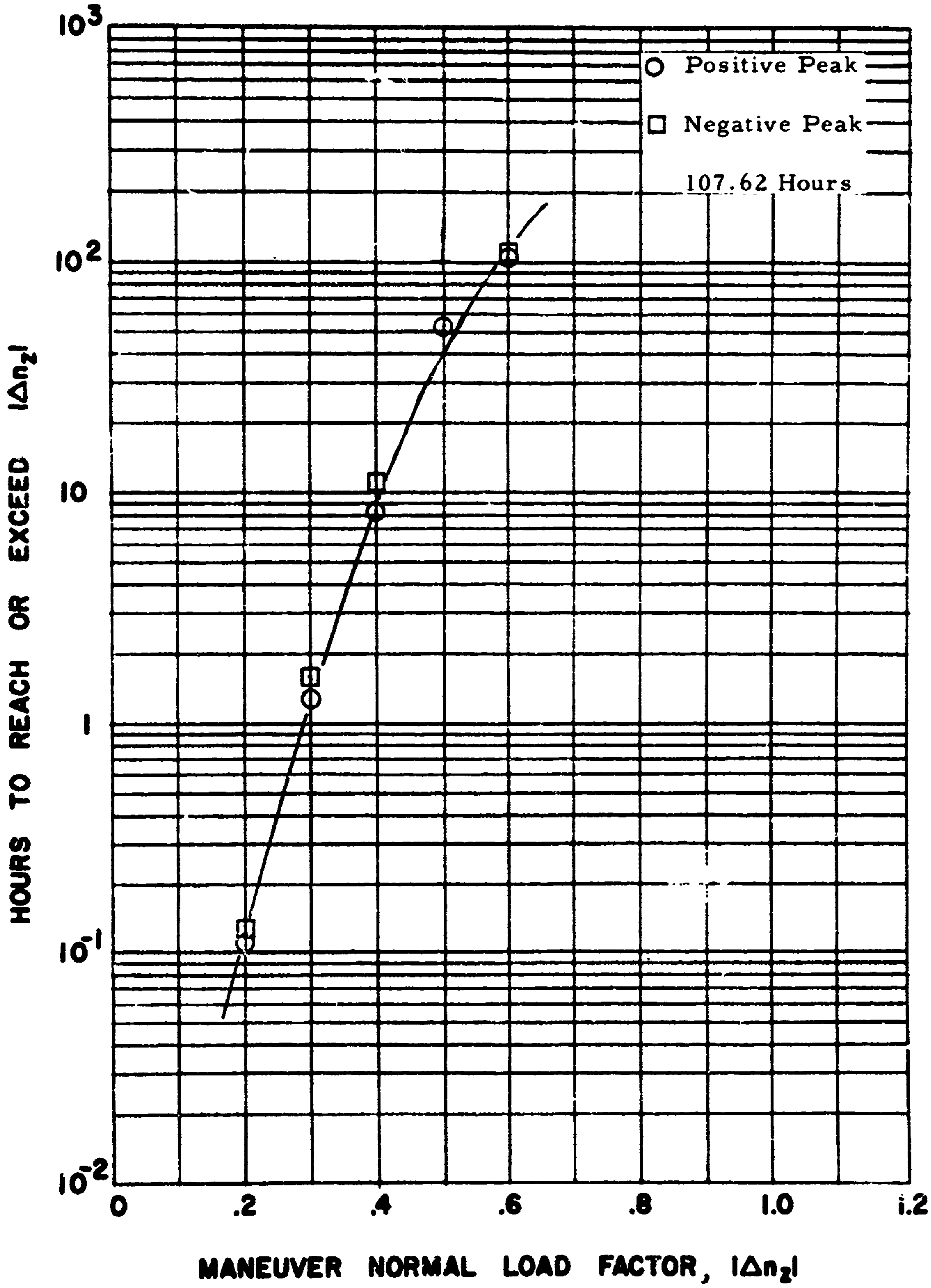


Figure 18. (d) Steady-State Mission Segment

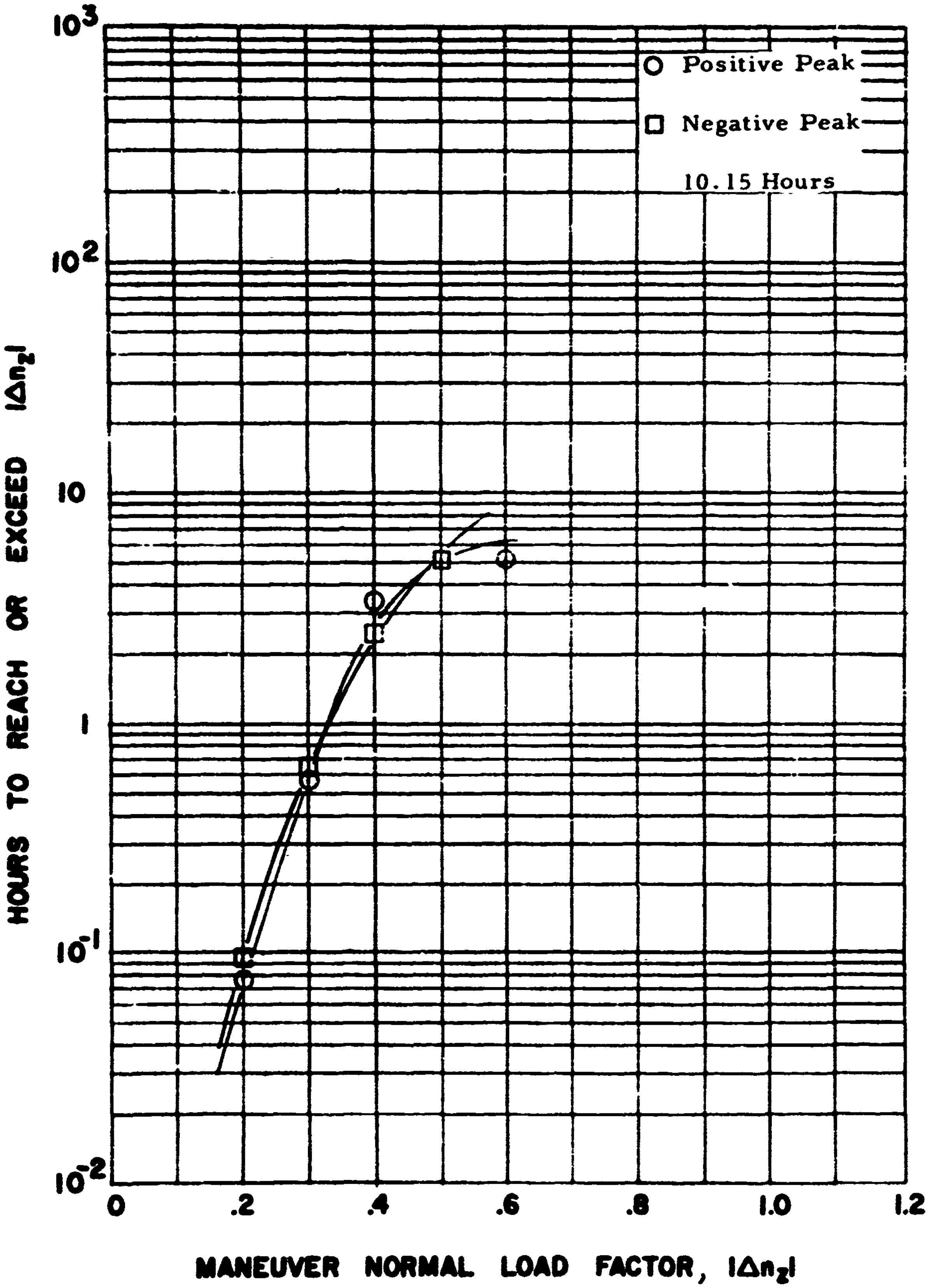


Figure 19. Exceedance Curves for Incremental Maneuver Normal Load Factor Peaks by Gross Weight Ranges

(a) Less Than 20,000 Pounds

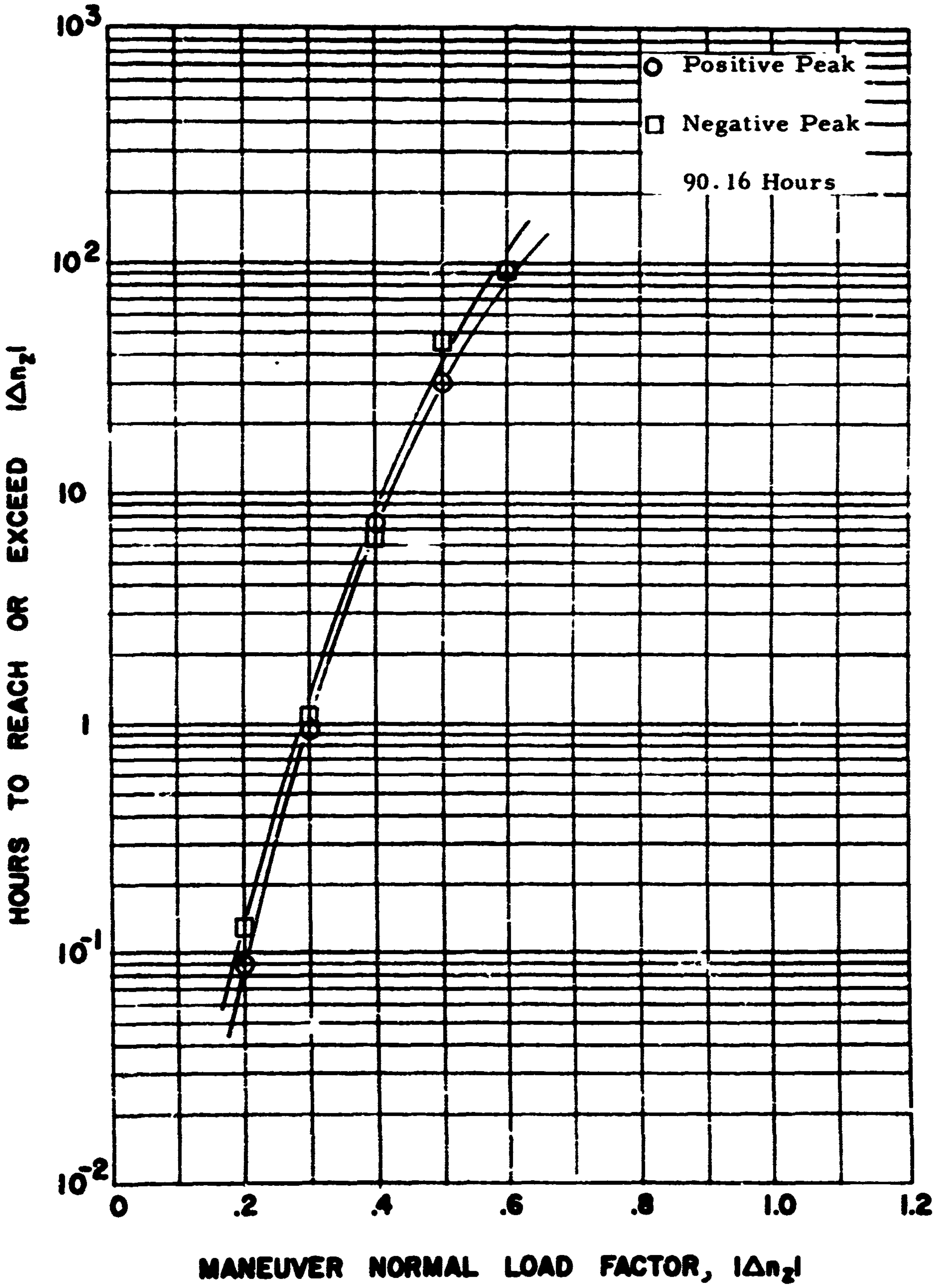


Figure 19. (b) 20,000 to 22,000 Pounds

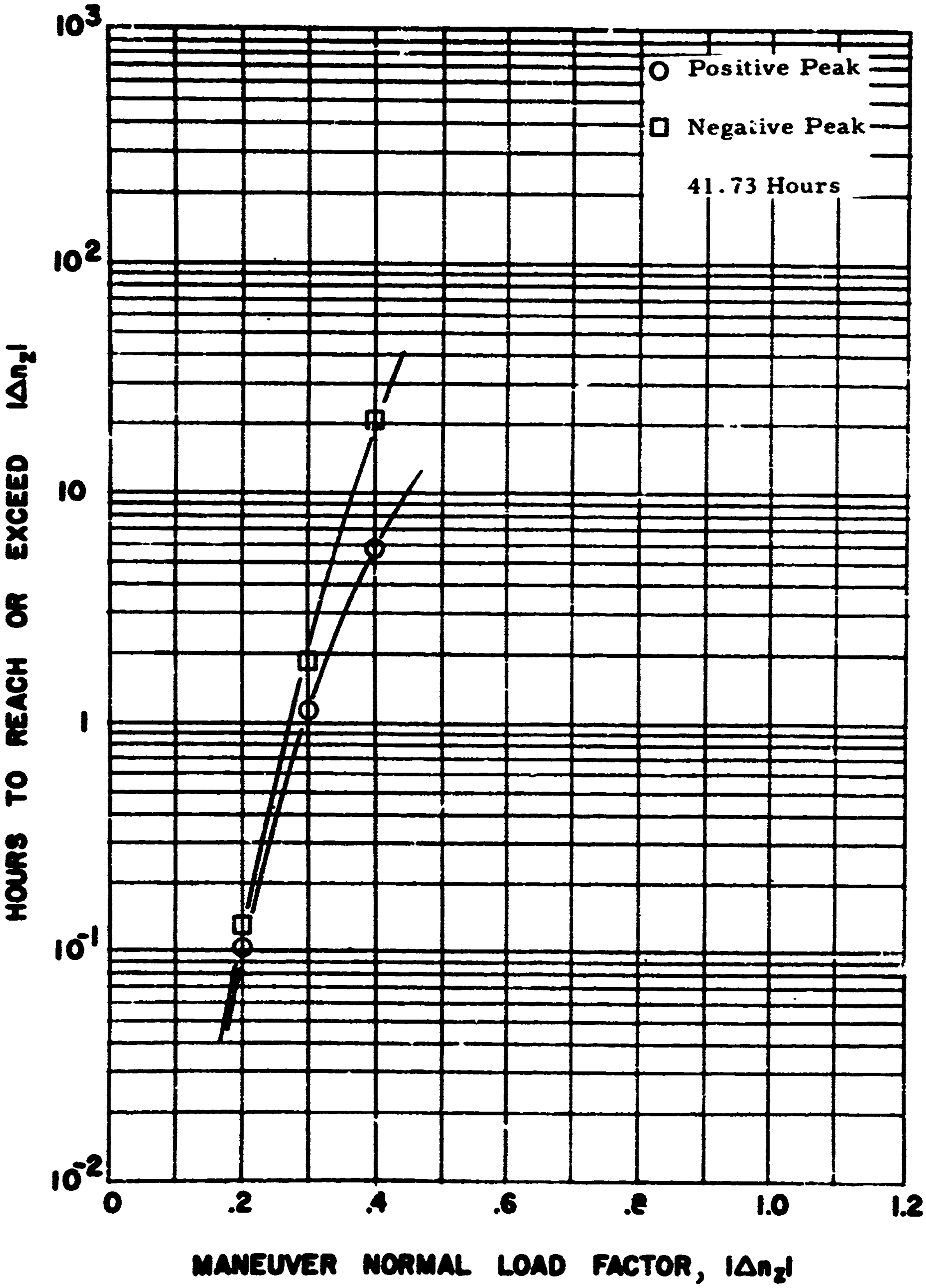


Figure 19. (c) 22,000 to 24,000 Pounds

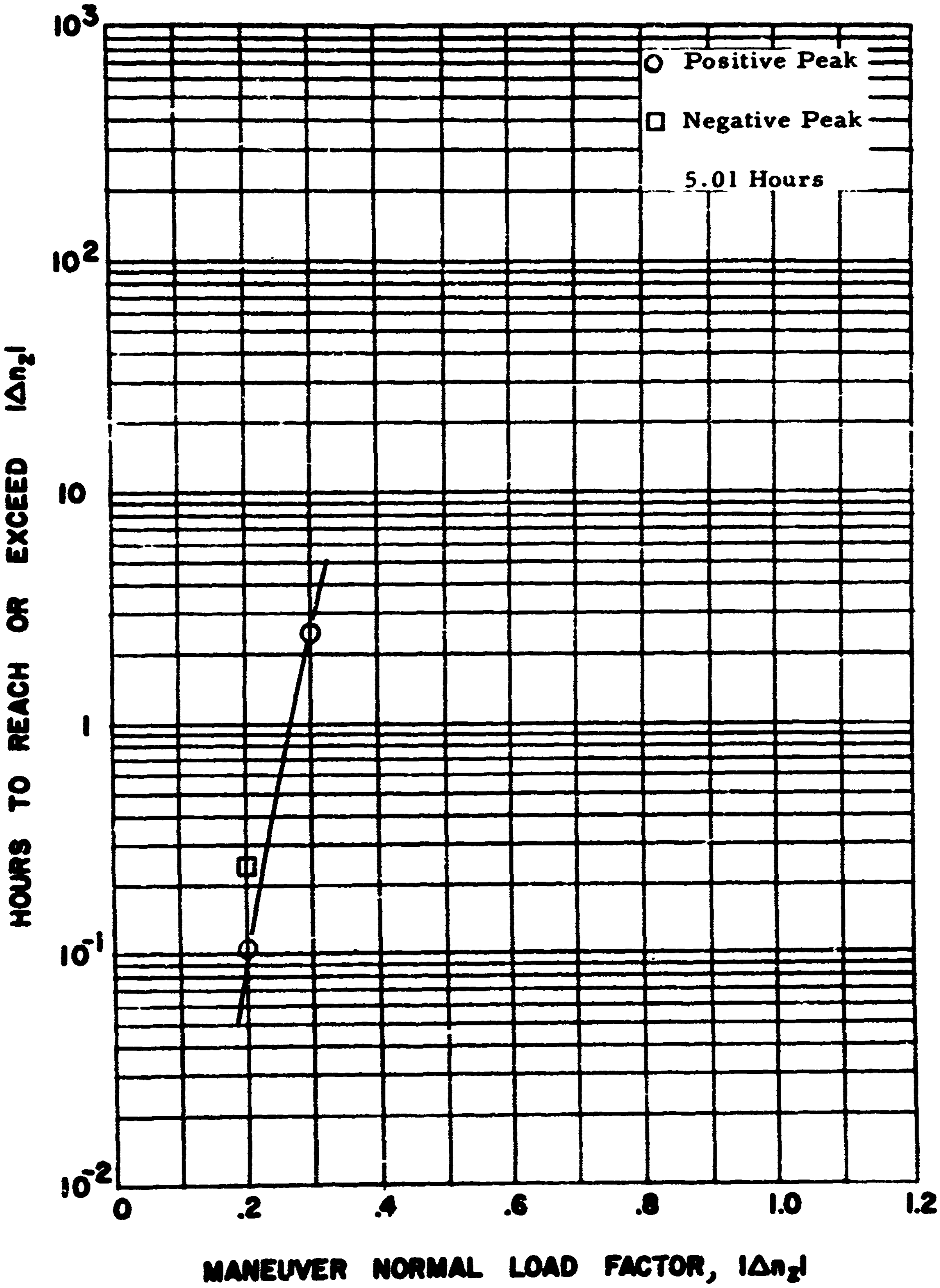


Figure 19. (d) 24,000 to 26,000 Pounds

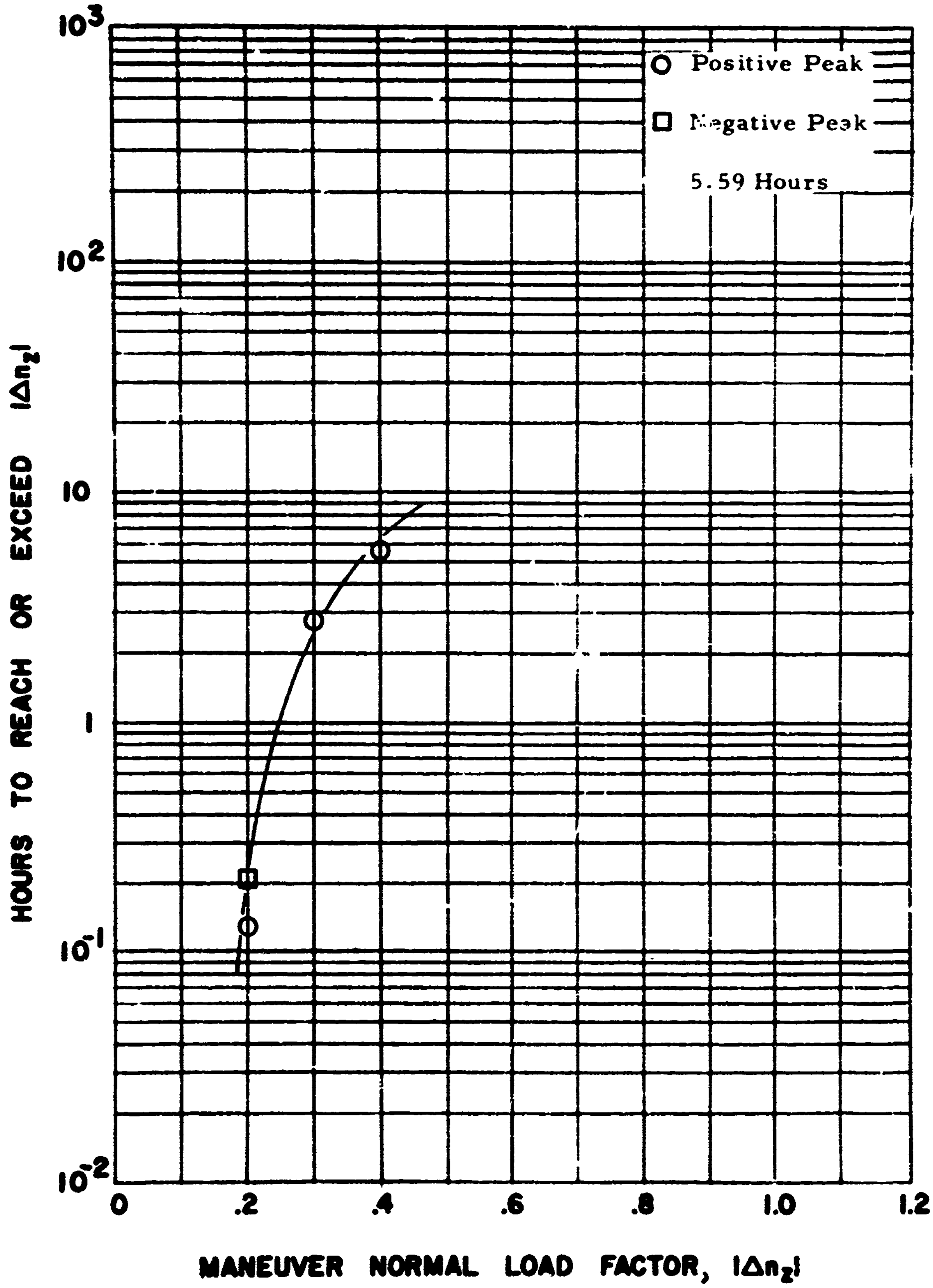


Figure 19. (e) 26,000 to 28,000 Pounds

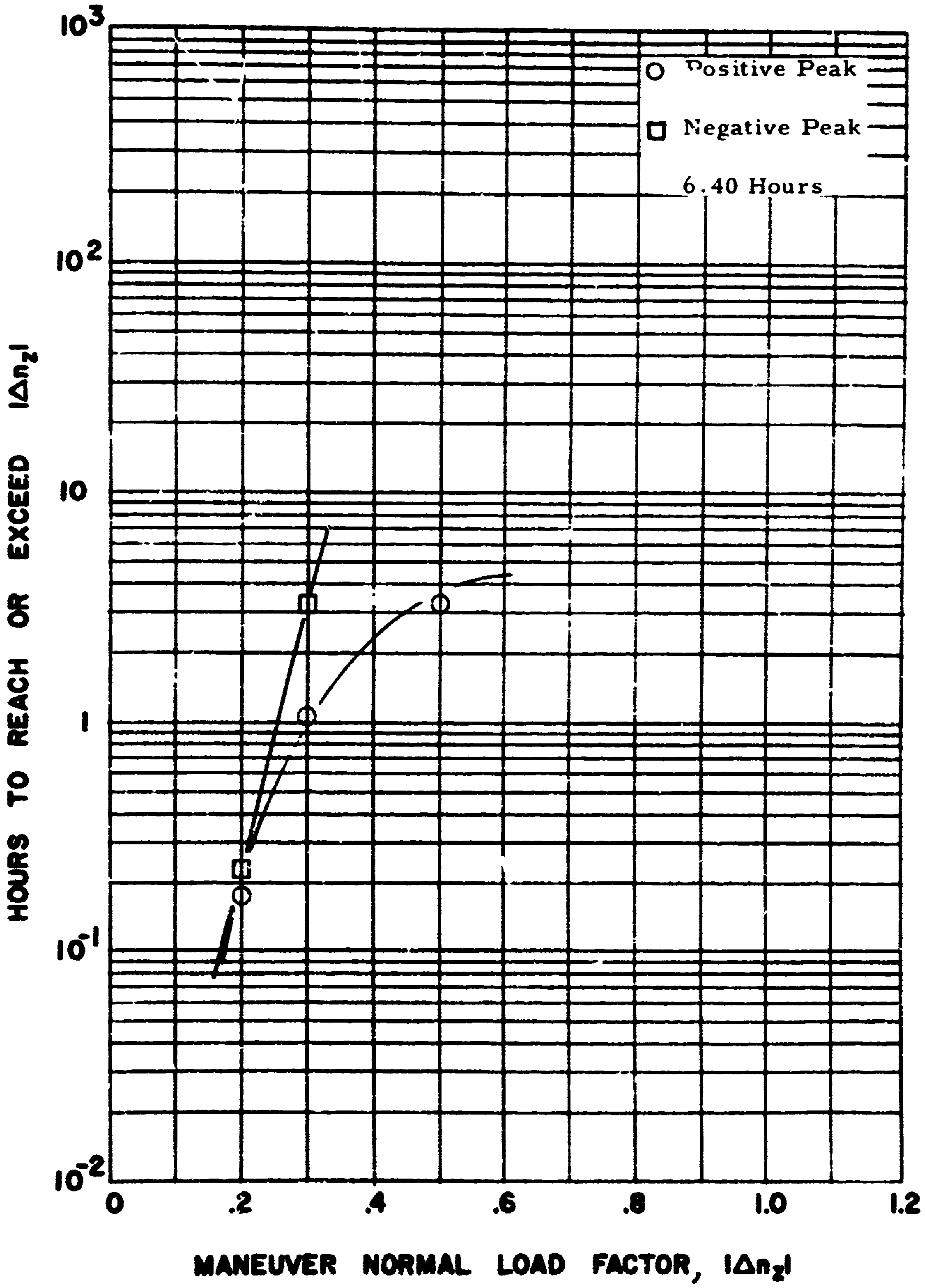


Figure 19. (f) 28,000 to 30,000 Pounds

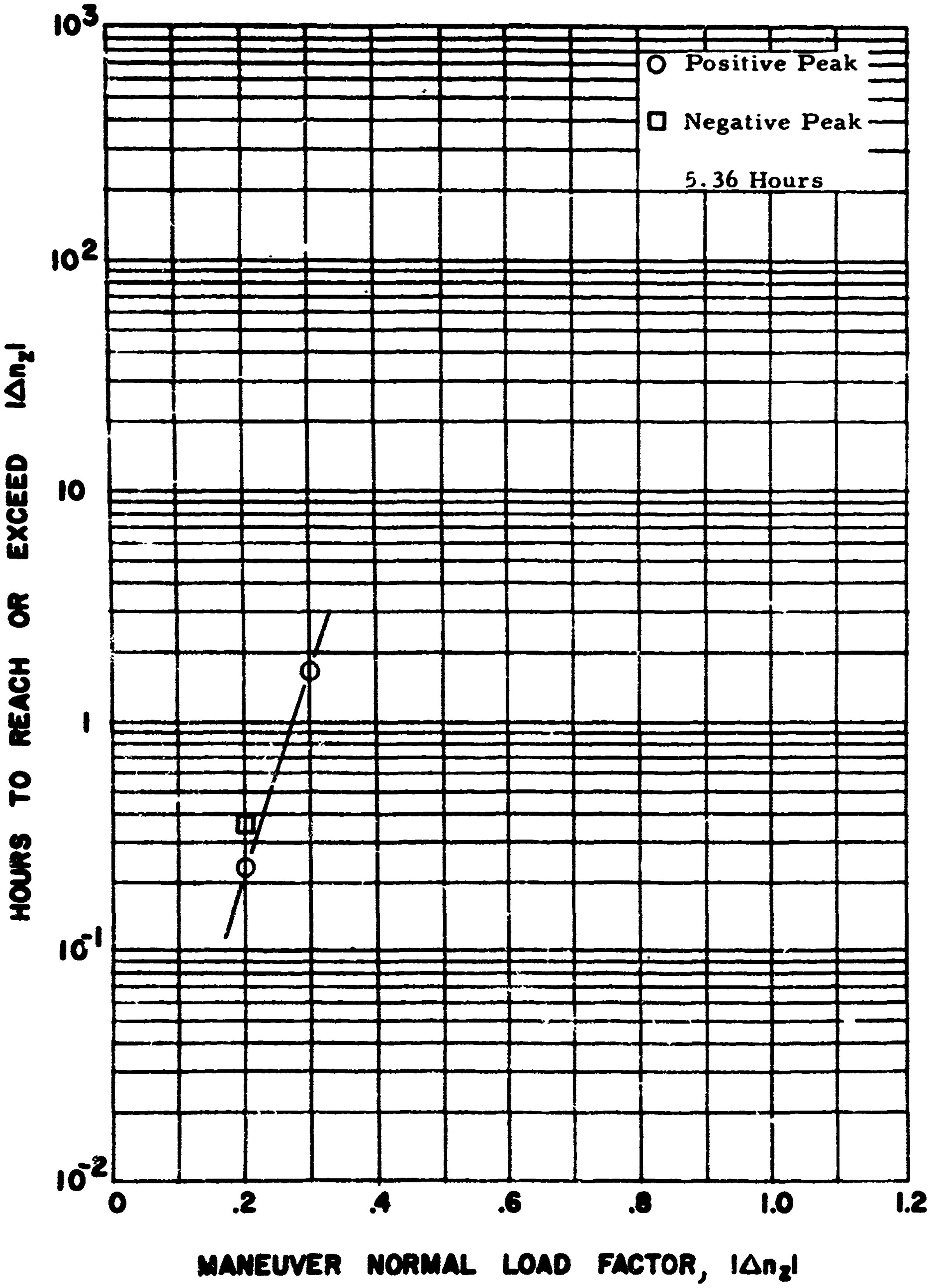


Figure 19. (g) 30,000 to 32,000 Pounds

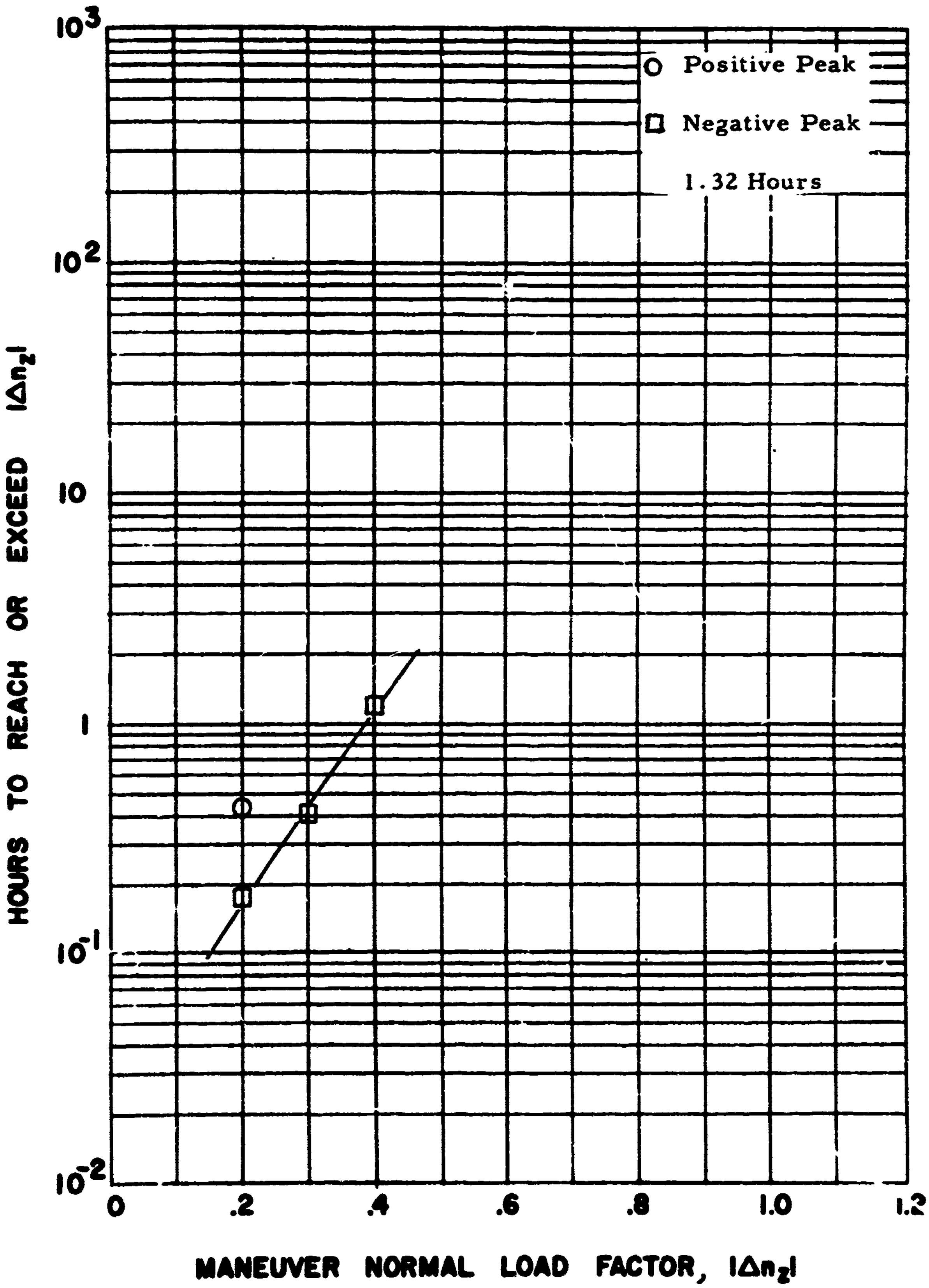


Figure 19. (h) 32,000 to 34,000 Pounds

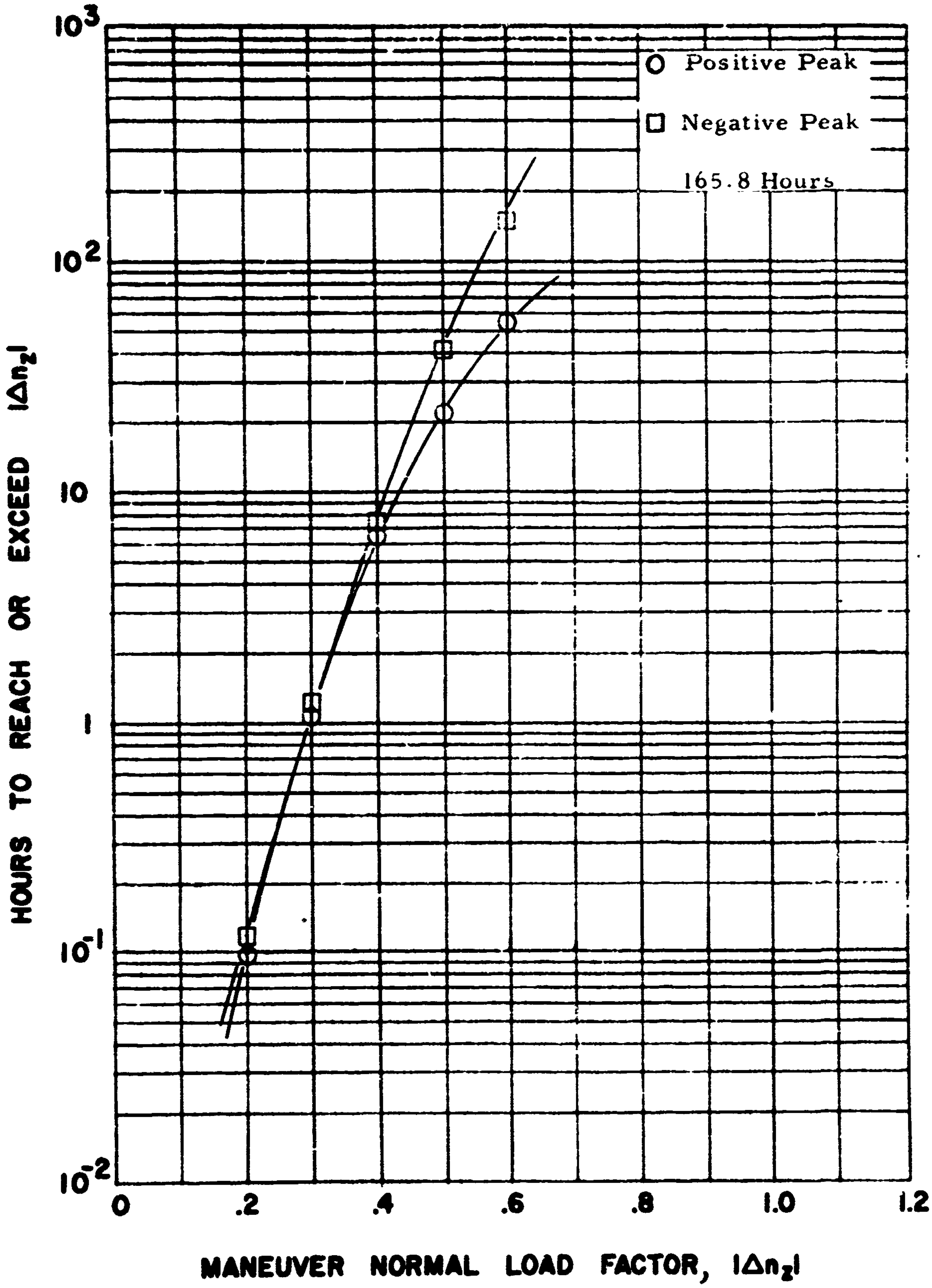
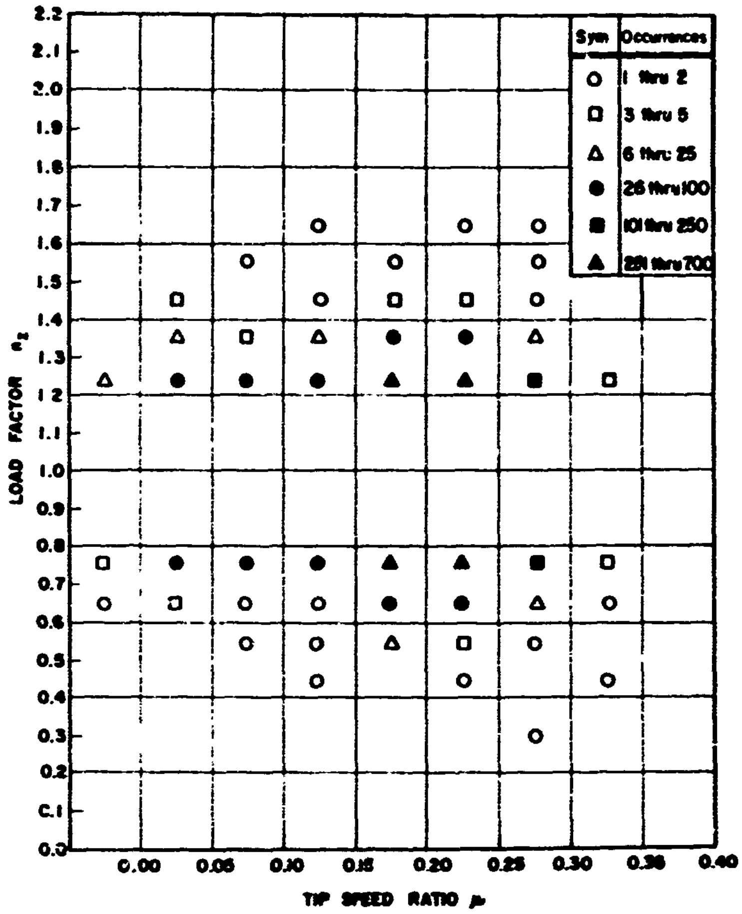


Figure 20. Exceedance Curves for the Composite of Incremental Maneuver Normal Load Factor Peaks



LOAD FACTOR n_z	TIP SPEED RATIO μ									TOTAL
	LESS THAN 0.00	0.00 to 0.05	0.05 to 0.10	0.10 to 0.15	0.15 to 0.20	0.20 to 0.25	0.25 to 0.30	0.30 to 0.35	0.35 to 0.40	
2.0 to 2.2										
1.9 to 2.0										
1.8 to 1.9										
1.7 to 1.8										
1.6 to 1.7				1		1	1			3
1.5 to 1.6			2		1		1			4
1.4 to 1.5		4		2	5	5	2			18
1.3 to 1.4		8	3	9	38	46	19			123
1.2 to 1.3	6	62	27	92	433	682	204	5		1511
0.8 to 1.2										
0.7 to 0.8	4	53	34	63	324	507	189	5		1179
0.6 to 0.7	2	3	2	2	27	45	18	1		100
0.5 to 0.6			1	1	8	5	2			17
0.4 to 0.5				1		1		1		3
0.2 to 0.4							1			1
0.0 to 0.2										
TOTAL	12	130	69	171	836	1292	437	12		2959

Figure 21. Diagram and Tabulation of Maneuver Normal Load Factor Peaks in Ranges of Rotor Tip Speed Ratio

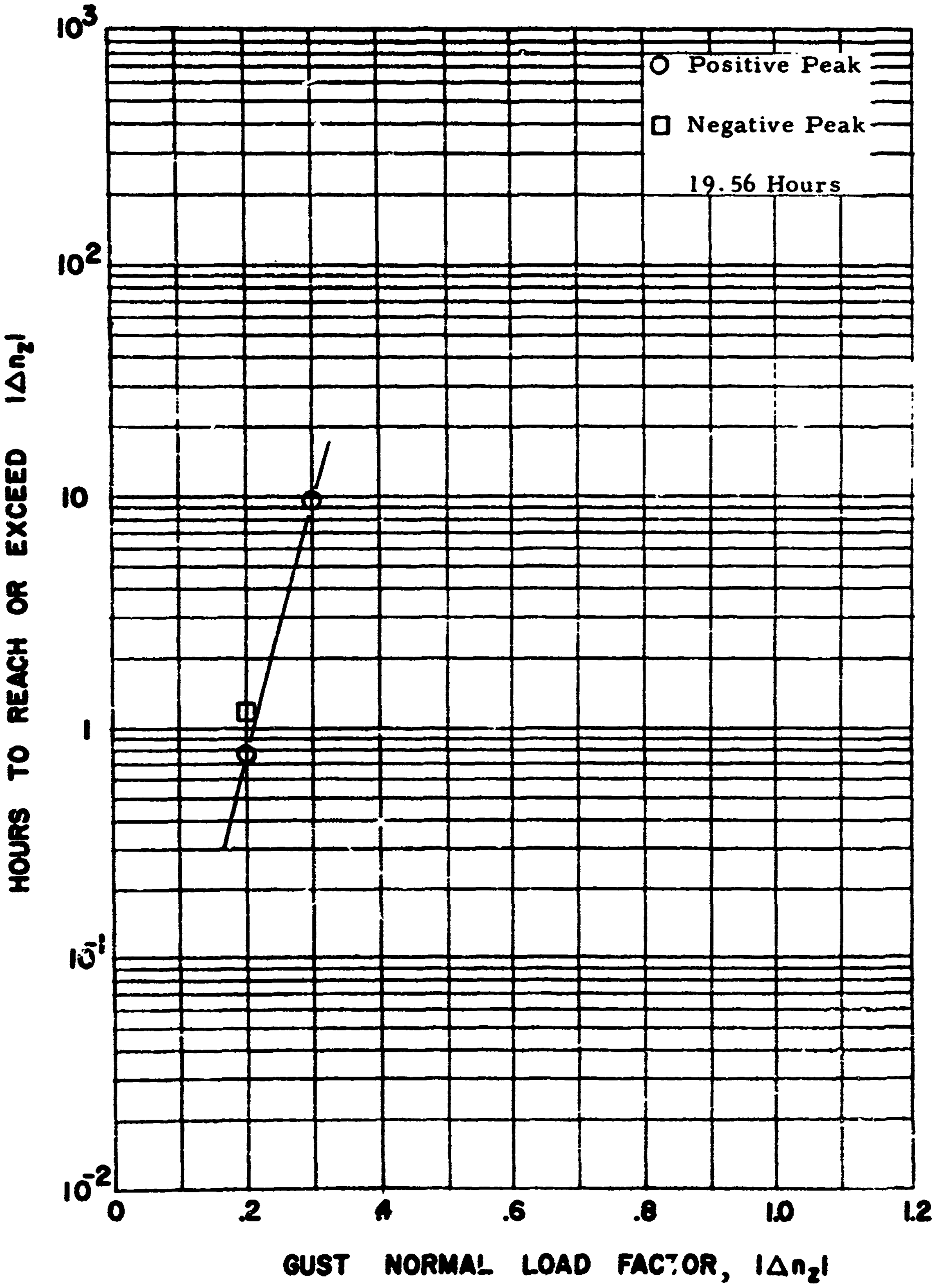


Figure 22. Exceedance Curves for Incremental Gust Normal Load Factor Peaks by Mission Segment

(a) Ascent Mission Segment

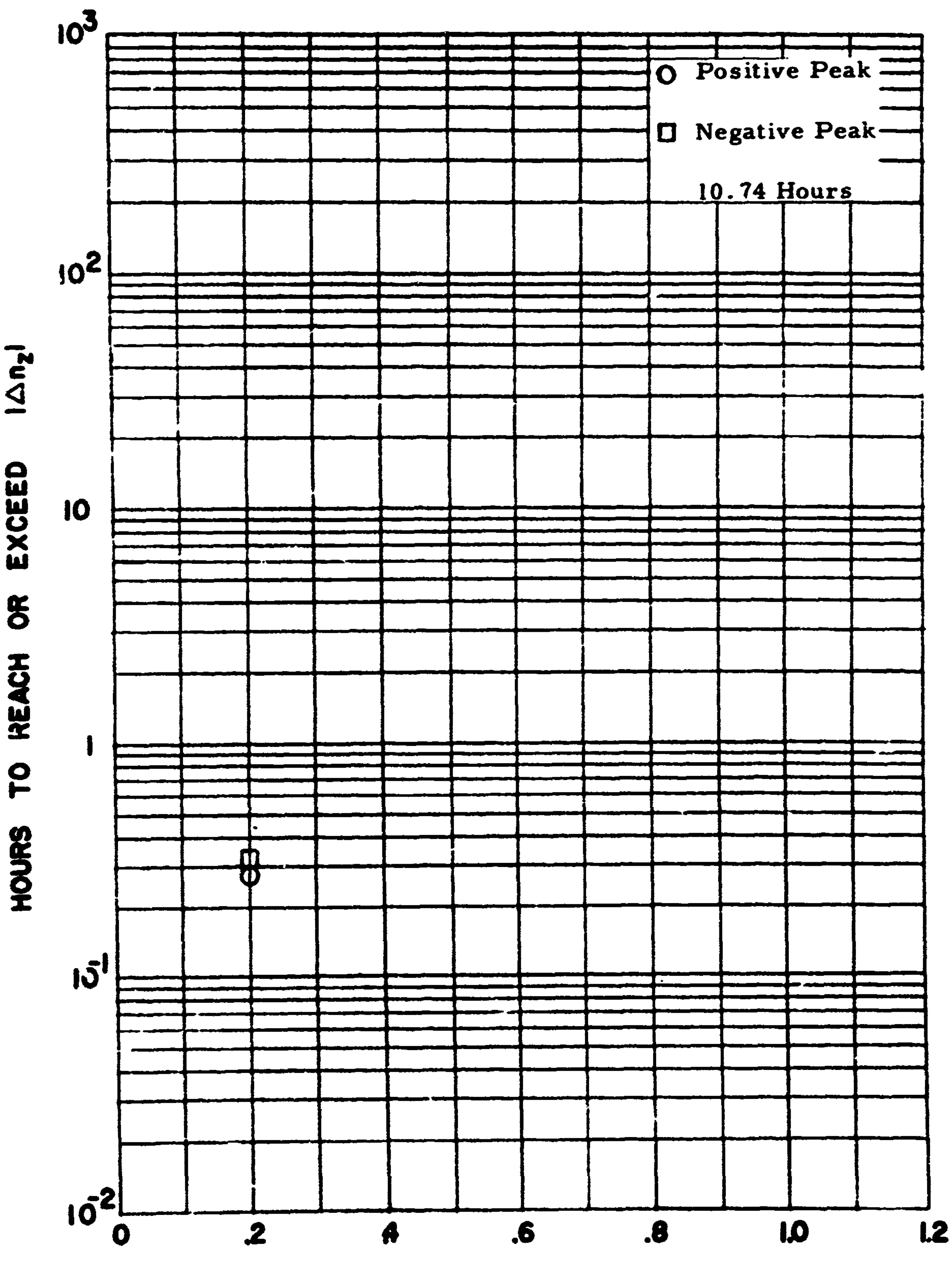


Figure 22. (b) Maneuver Mission Segment

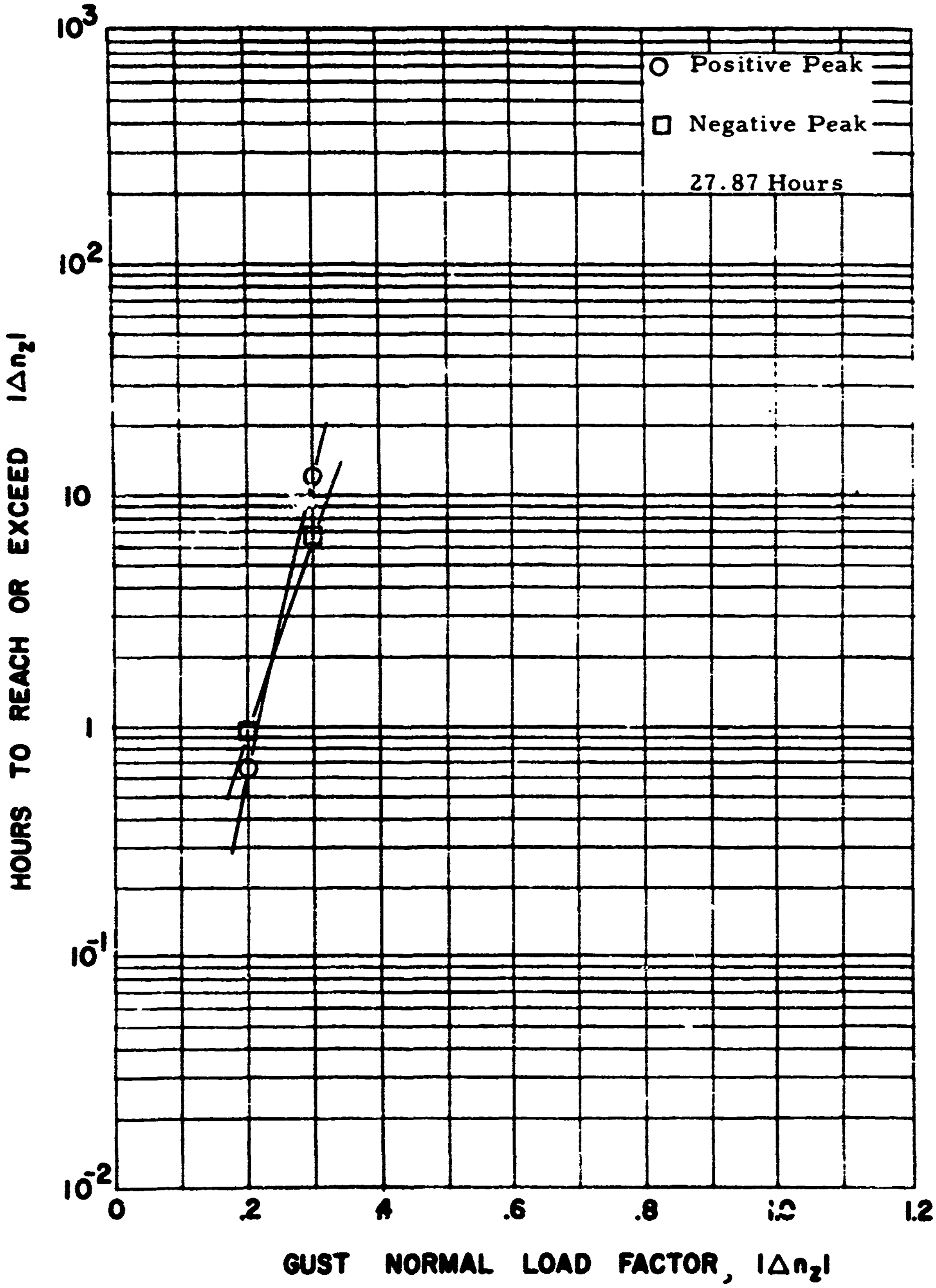
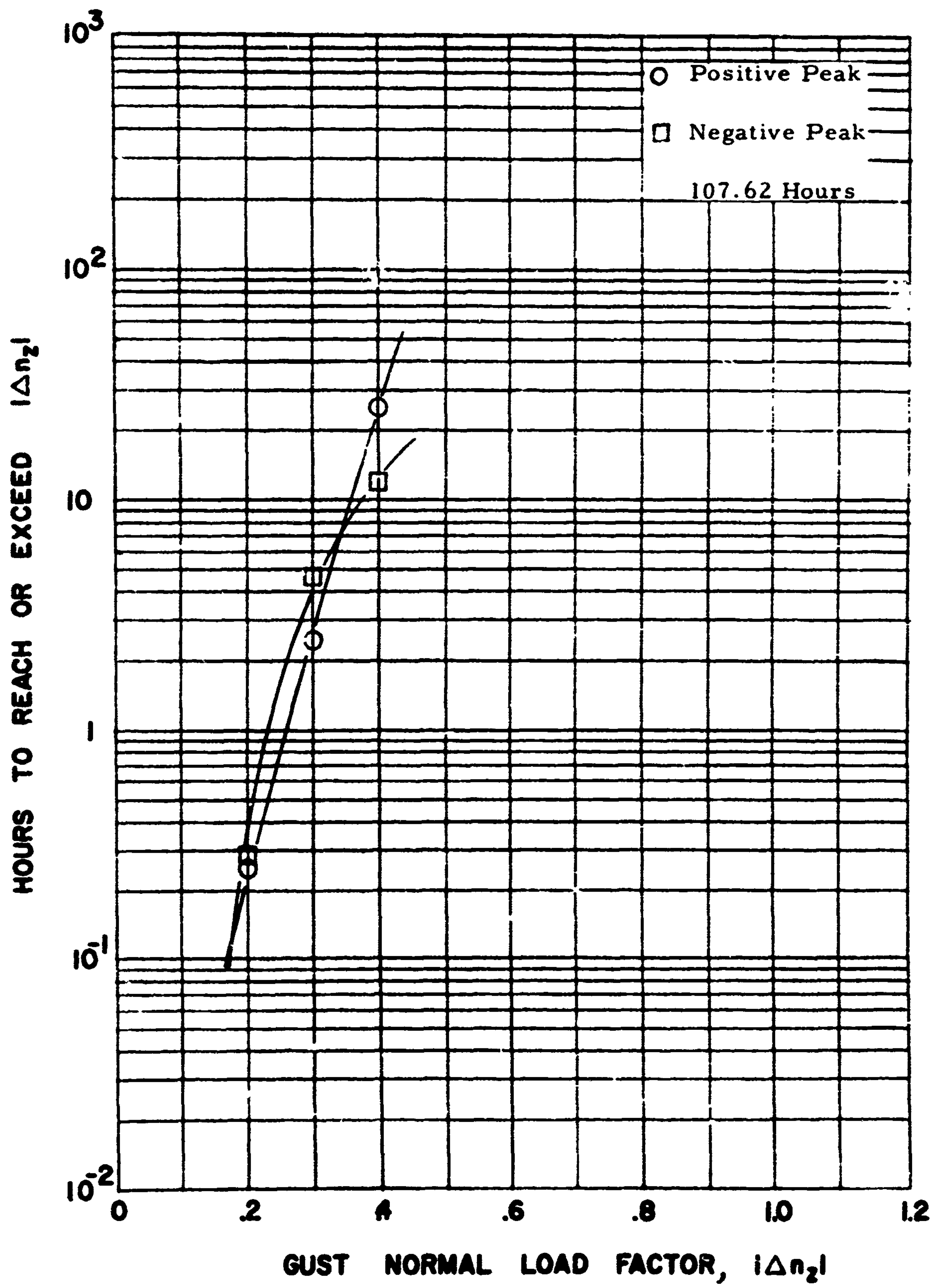


Figure 22. (c) Descent Mission Segment



F.gure 22. (d) Steady-State Mission Segment

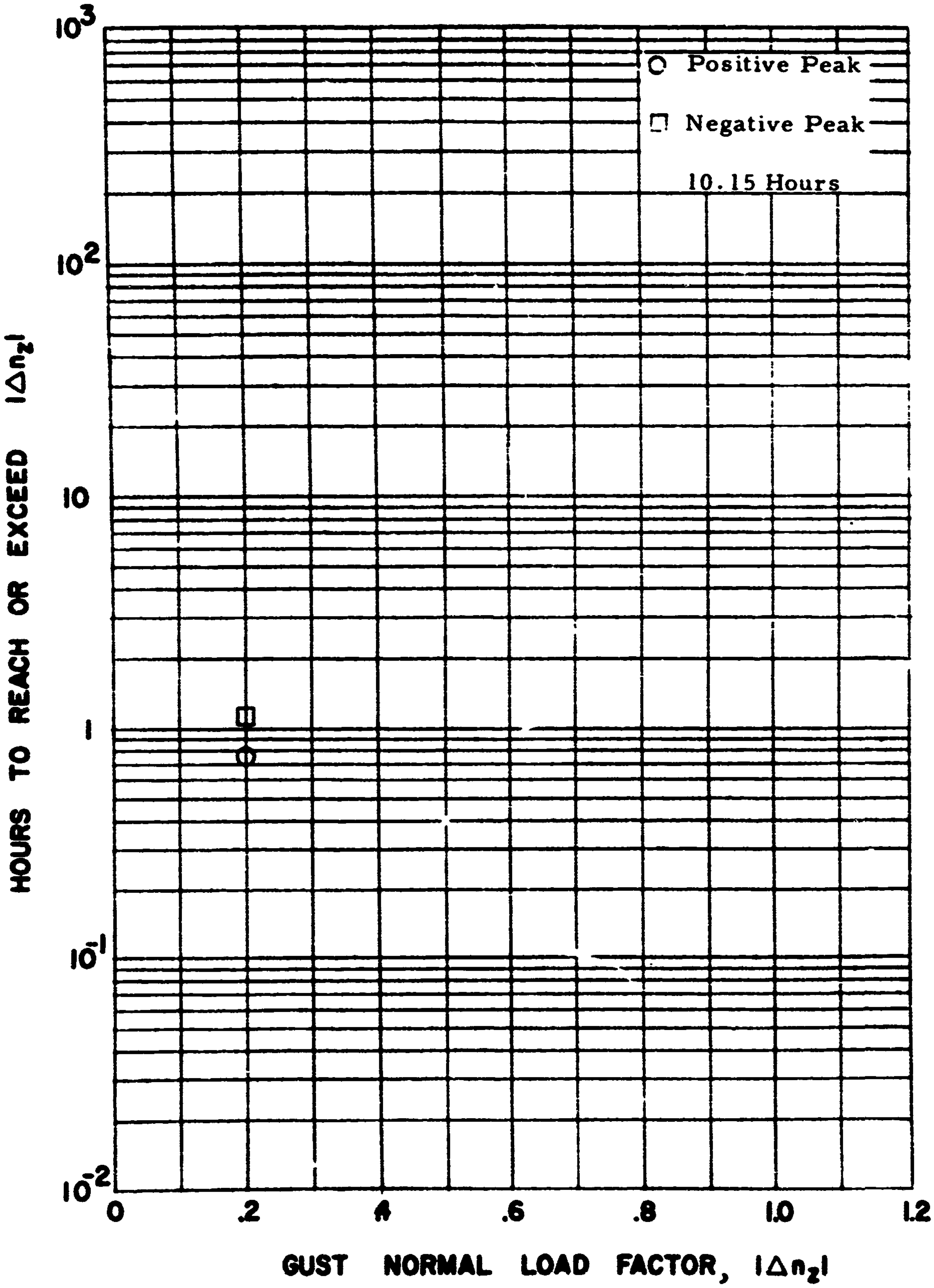


Figure 23. Exceedance Curves for Incremental Gust Normal Load Factor Peaks by Gross Weight Ranges

(a) Less Than 20,000 Pounds

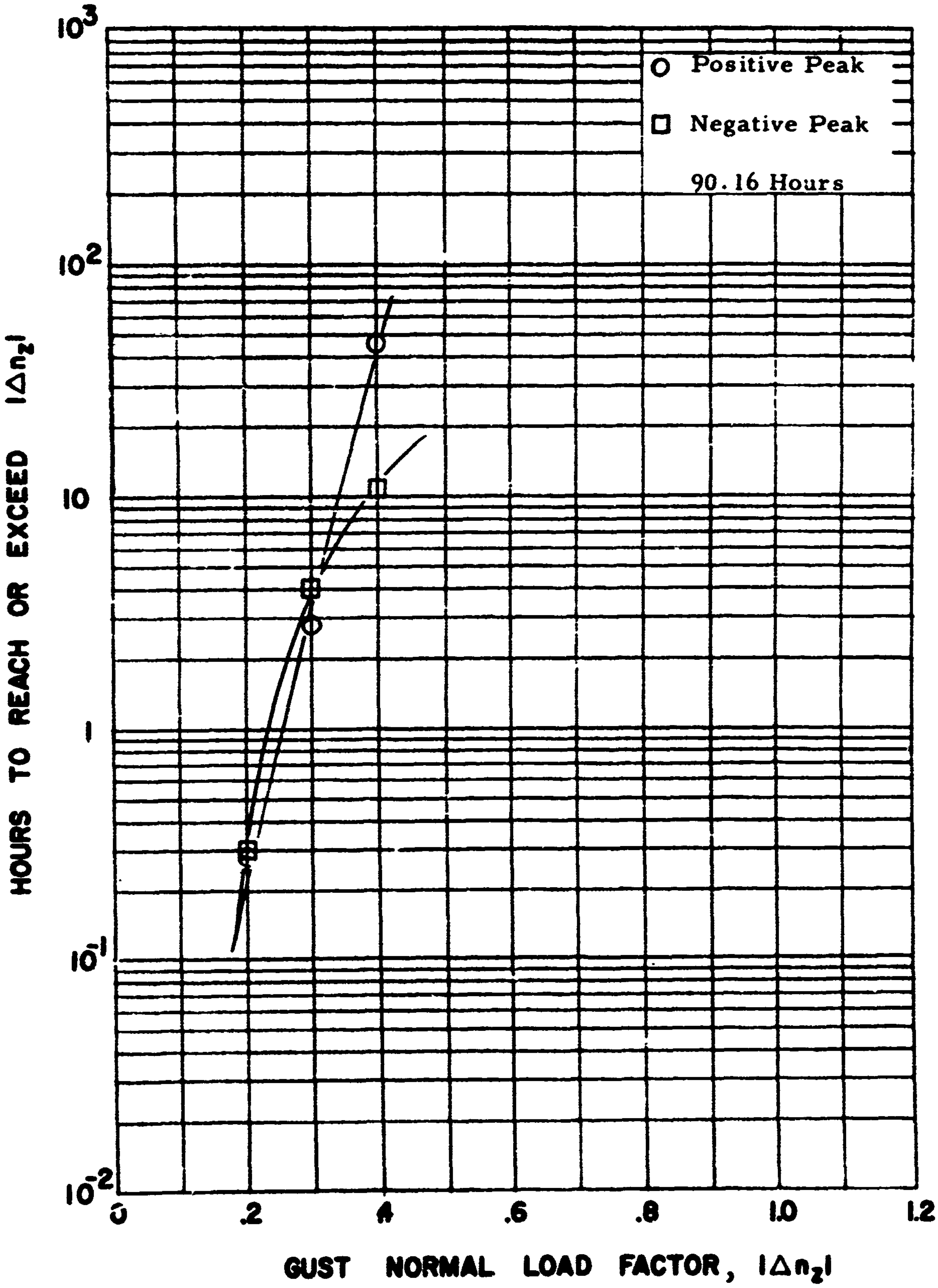


Figure 23. (b) 20,000 to 22,000 Pounds

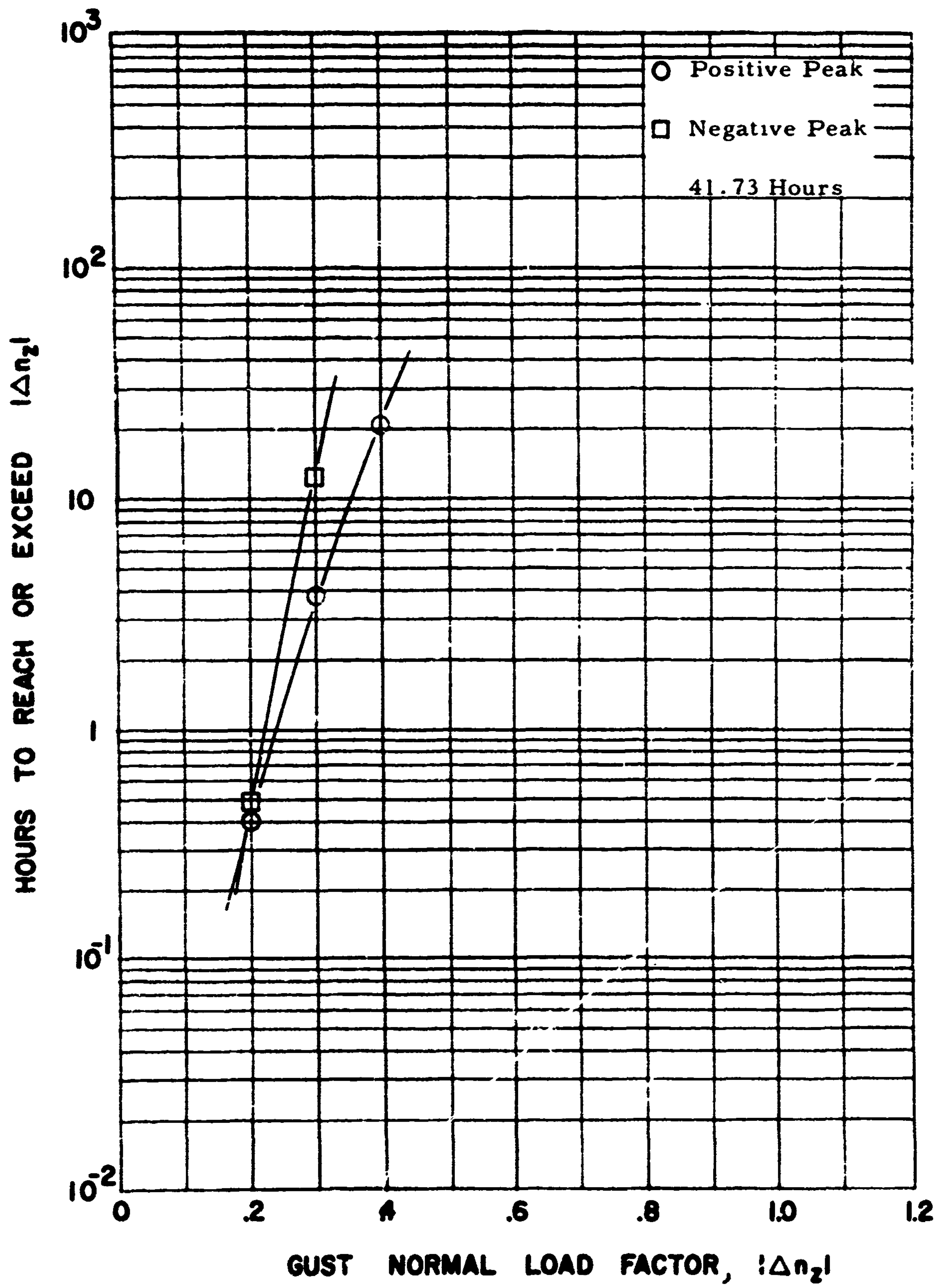


Figure 23. (c) 22,000 to 24,000 Pounds

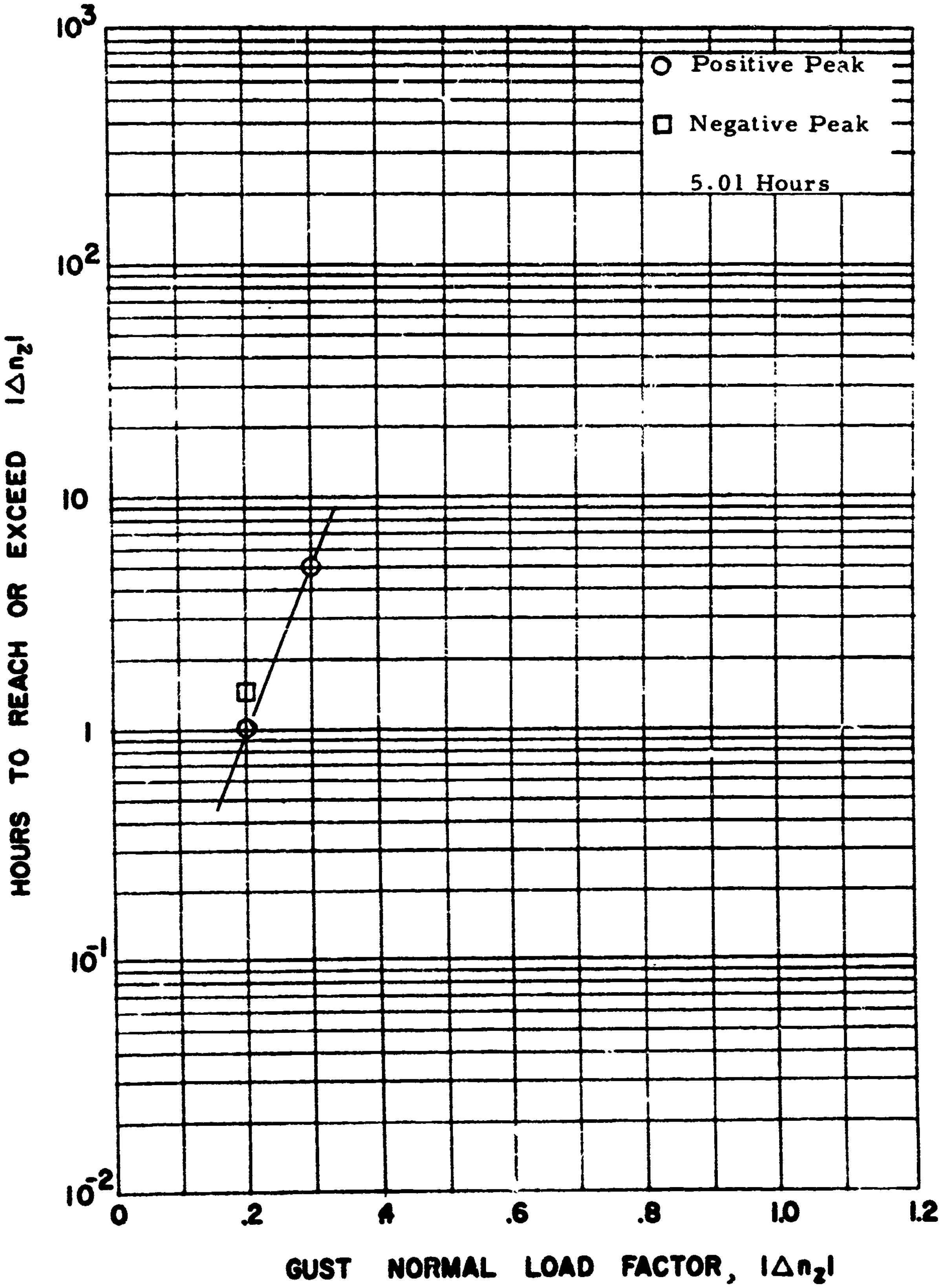


Figure 23. (d) 24,000 to 26,000 Pounds

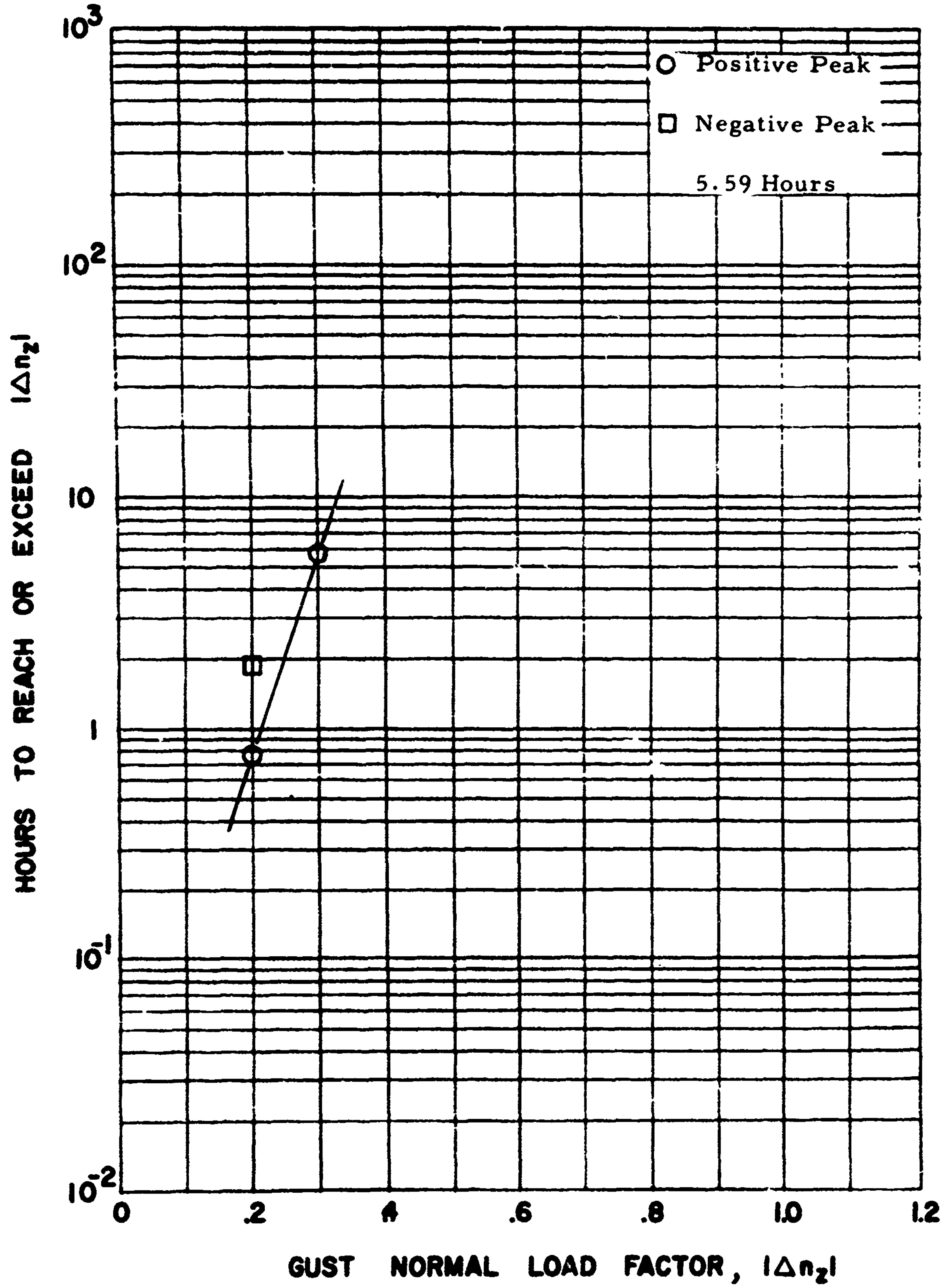


Figure 23. (e) 26,000 to 28,000 Pounds

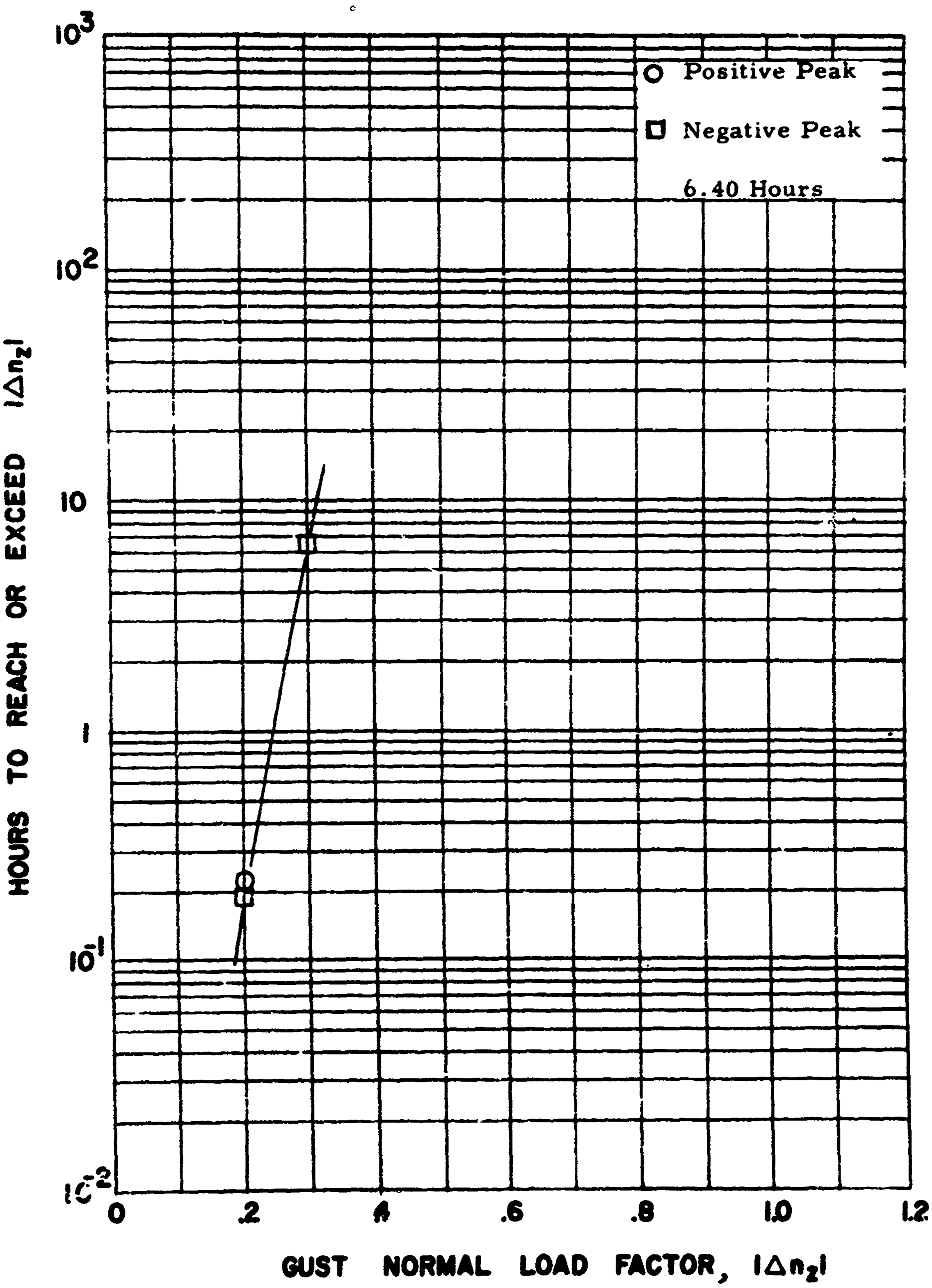


Figure 23. (f) 28,000 to 30,000 Pounds

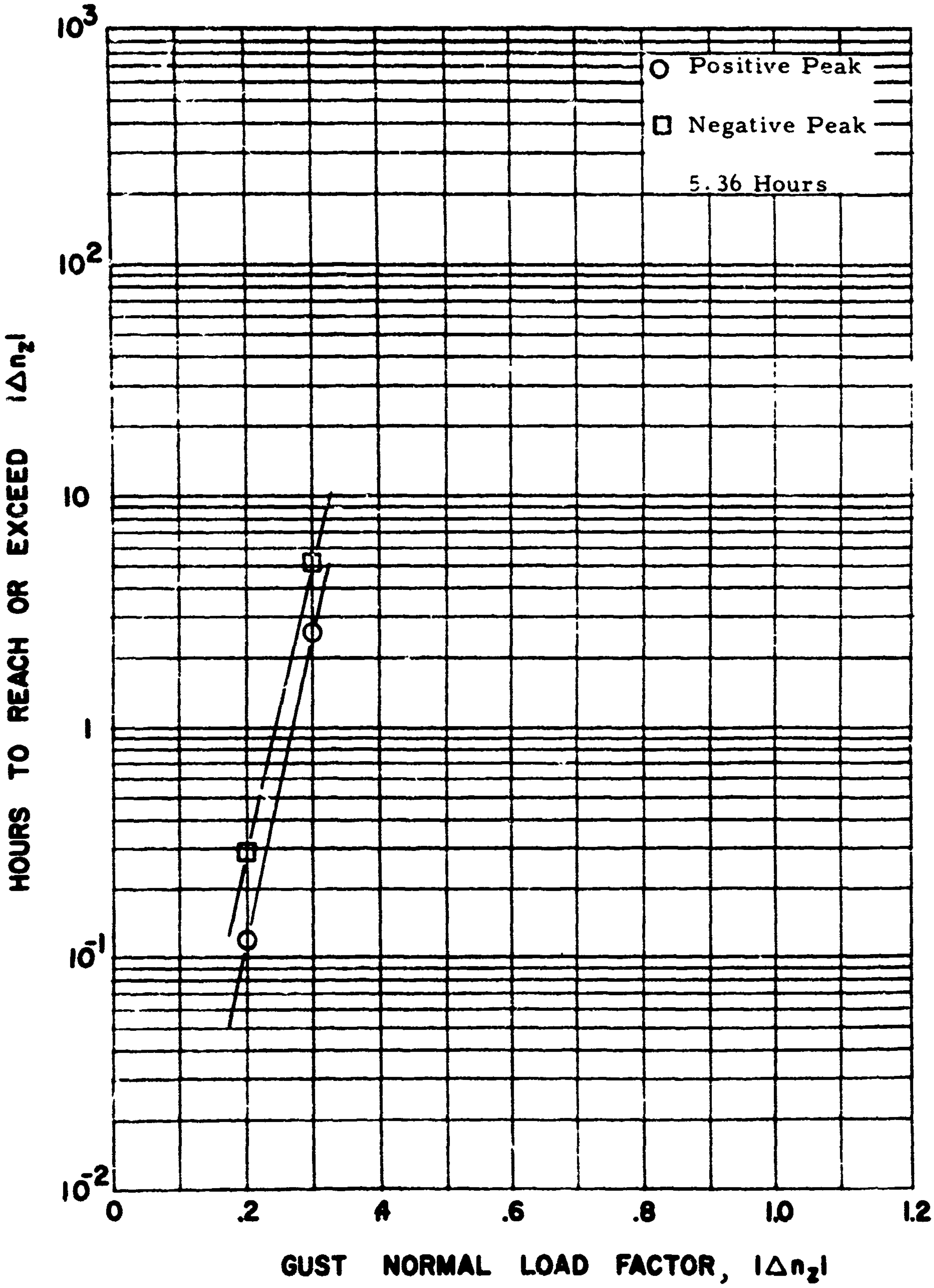


Figure 23. (g) 30,000 to 32,000 Pounds

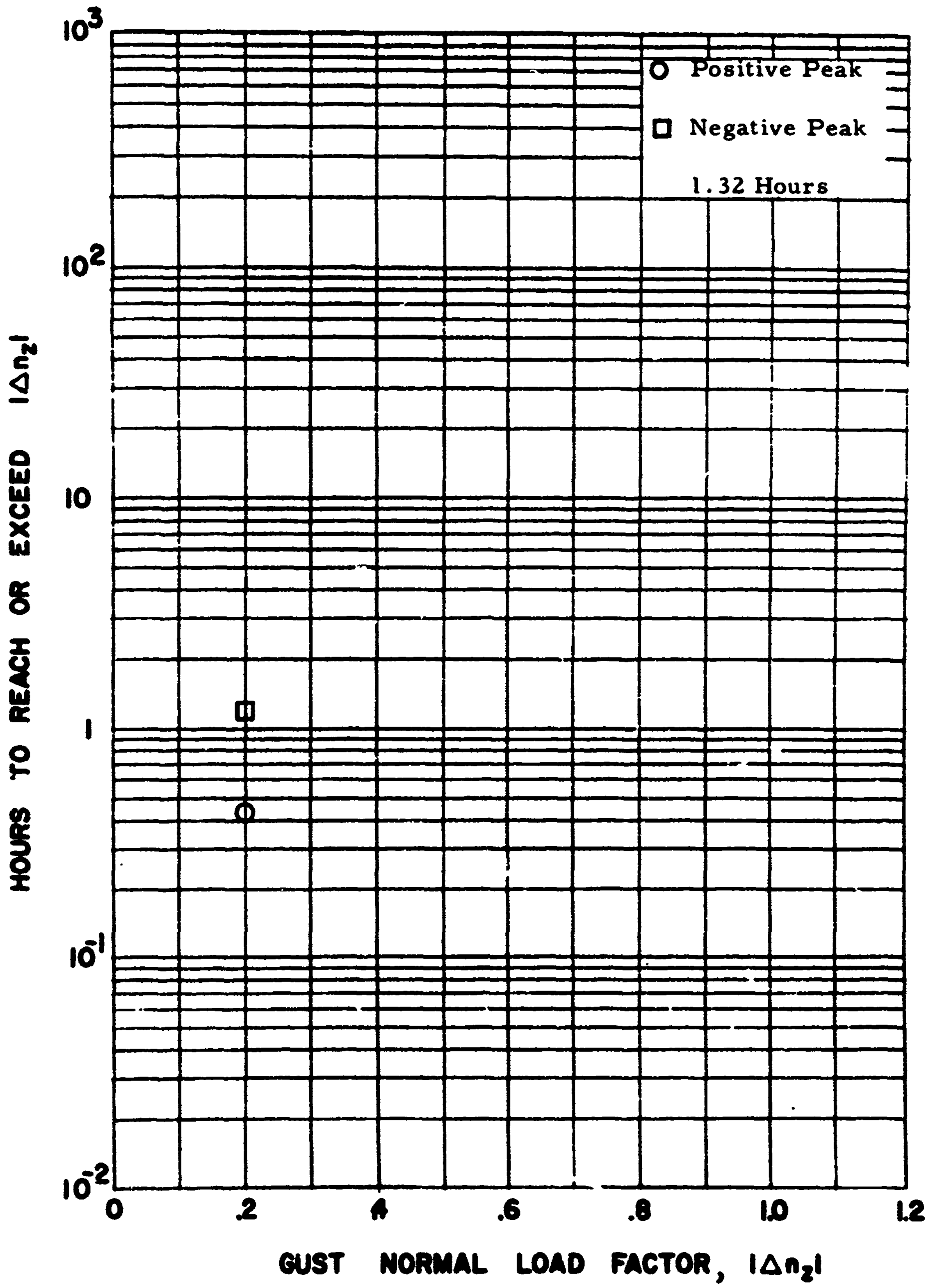


Figure 23. (h) 32,000 to 34,000 Pounds

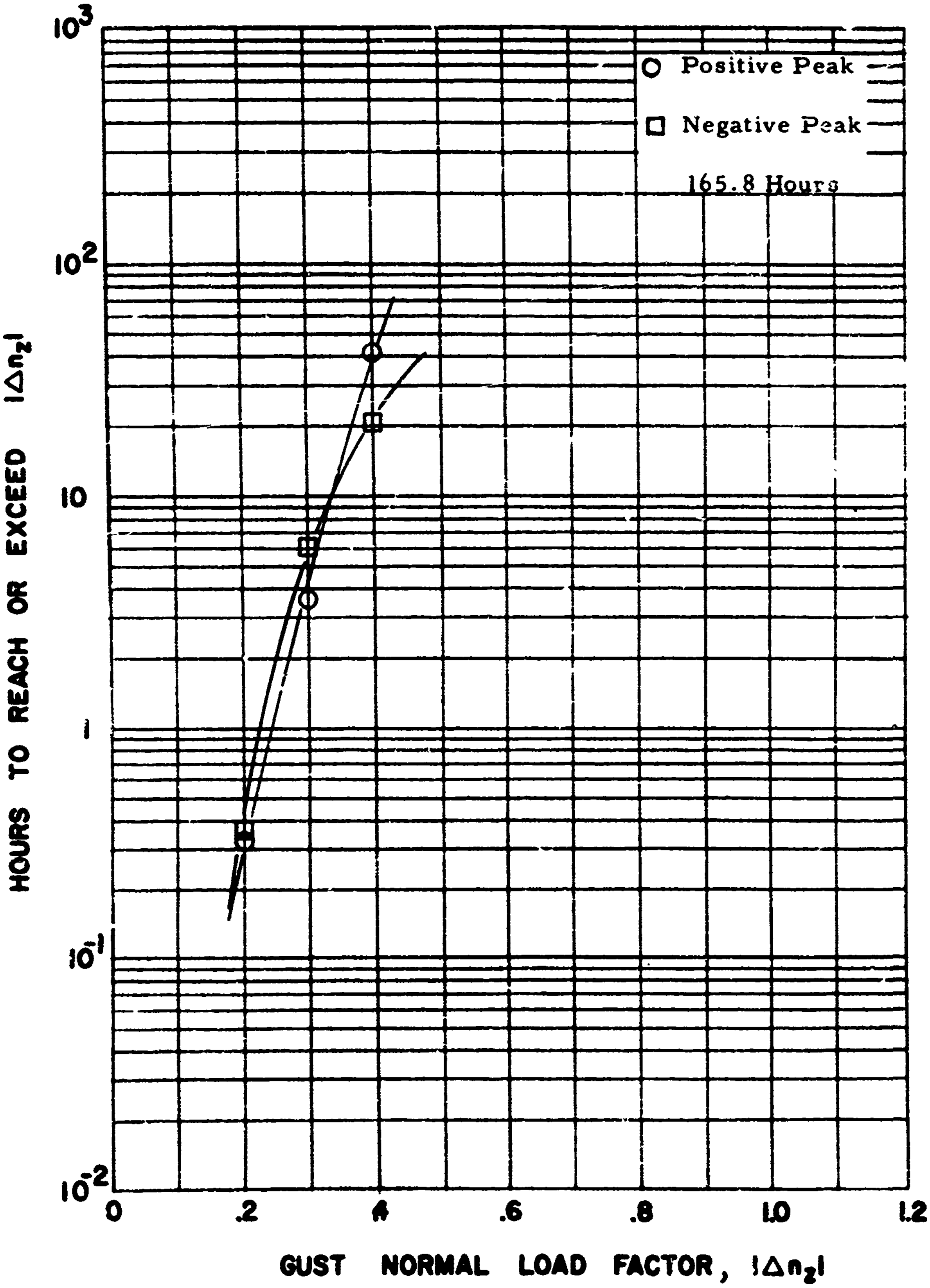
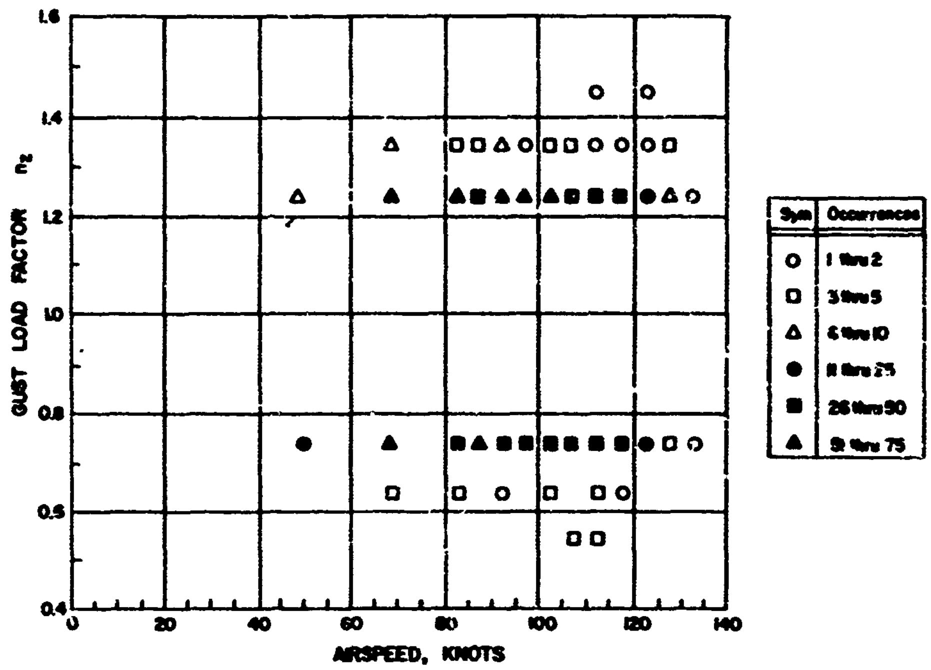


Figure 24. Exceedance Curves for Composite of Incremental Gust Normal Load Factor Peaks



GUST LOAD FACTOR n_z	AIRSPEED, KNOTS														TOTAL n_z
	40 to 60	60 to 80	80 to 85	85 to 90	90 to 95	95 to 100	100 to 105	105 to 110	110 to 115	115 to 120	120 to 125	125 to 130	130 to 135	135 to 140	
1.5 to 1.6															
1.4 to 1.5									2		2				4
1.3 to 1.4		9	4	3	7	2	5	5	2	1	2	3			43
1.2 to 1.3	9	72	52	46	56	51	53	41	31	29	21	8	1		470
0.8 to 1.2															
0.7 to 0.8	12	64	34	53	41	49	32	36	44	33	18	5	1		422
0.6 to 0.7		4	3		1		5		4	2					19
0.5 to 0.6								4	4						8
0.4 to 0.5															
TOTAL	21	149	93	102	105	102	95	86	87	65	43	16	2		966

Figure 25. Diagram and Tabulation of Gust Normal Load Factor Peaks in Ranges of Indicated Airspeeds

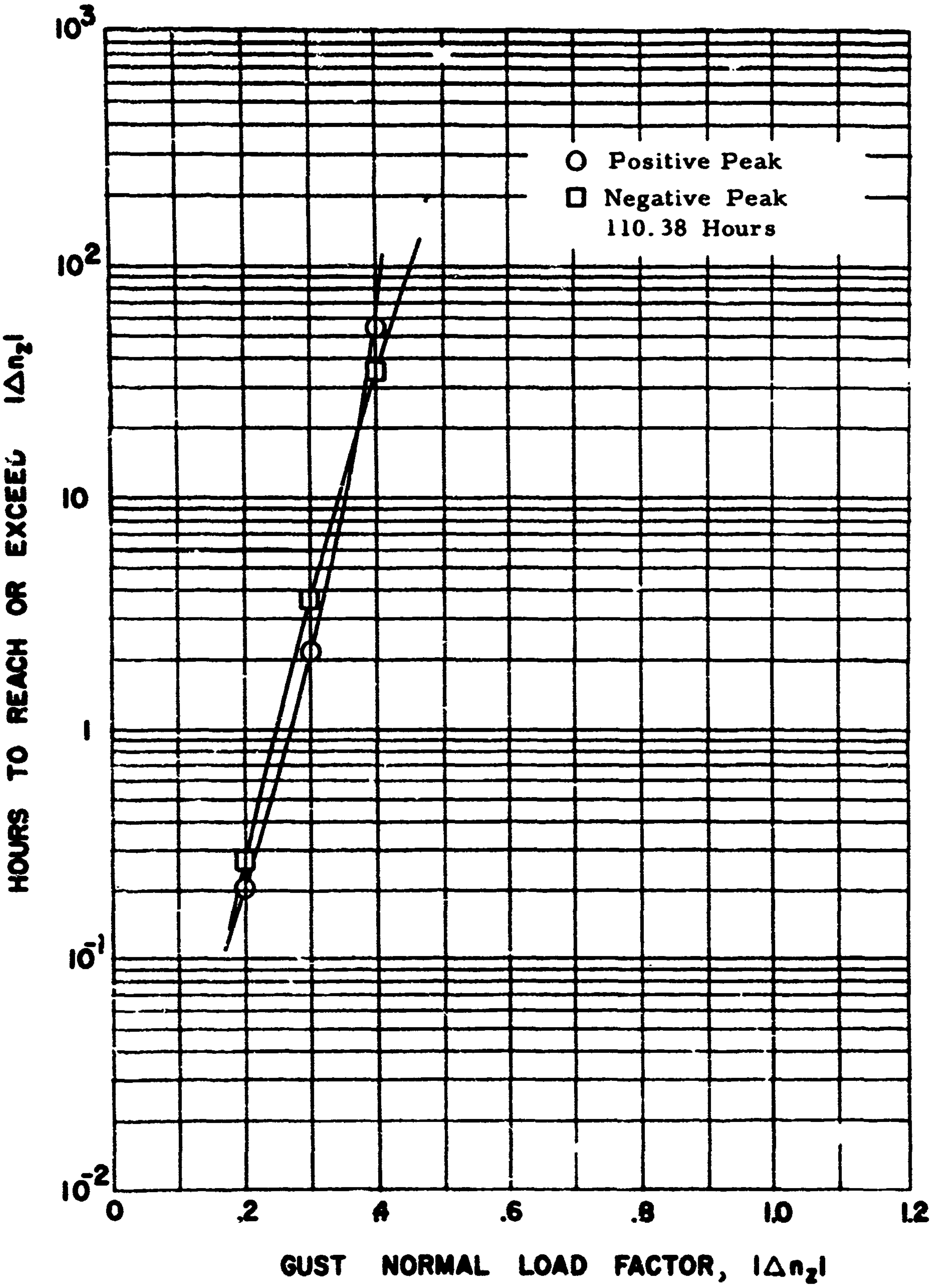


Figure 26. Composite Exceedance Curves for Incremental Gust Normal Load Factor Peaks - CH-54A Helicopter (Reference 3).

APPENDIX II

COMPUTER PRINTOUTS

Tables III through XXXIII are computer printouts.

All times are given in minutes unless otherwise specified. Times have been rounded off to the nearest tenth of a minute. Thus, time tables which are added before rounding occurs may disagree with the sum of the rounded values by some fraction of a minute. The method assures that any value shown is within 0.05 minute of the correct value. A time value between 0 and up to but not including 0.05 minute was printed as "0.0", while no time measured was printed as "0." .

Tables having no points or time were not printed.

Table headings are arranged so that the first-mentioned parameter refers to the vertical ranges at the left of the table; the second-mentioned parameter refers to the horizontal ranges at the top of the table; where a third or fourth parameter is mentioned, it is followed by its range in the heading. As an example, the heading "NZ GUST PEAKS VS VEL. BY MISS. SEG. ASCENT, ALT. LESS, WGT. 30000" indicates the number of gust n_z peaks in selected airspeed ranges for ascent, altitude below 1000 feet, and weight between 30,000 and 32,000 pounds.

The range codes for all parameters are given on the following pages. The codes are the lower limits of each range.

Airspeed Acceleration (ft/sec^2)

Code	Range
Less	Below -15
-15	-15 to -12
-12	-12 to -9
-9	-9 to -6
-6	-6 to -3
-3	-3 to 3
3	3 to 6
6	6 to 9
9	9 to 12
12	Above 12

Rate of Climb (ft/min)

Code	Range
Less	Below -2500
-2500	-2500 to -2000
-2000	-2000 to -1500
-1500	-1500 to -1000
-1000	-1000 to -500
-500	-500 to 500
500	500 to 1000
1000	1000 to 1500
1500	1500 to 2000
2000	2000 to 2500
2500	Above 2500

Tip Speed Ratio

Code	Range
Less	Below 0.00
0.00	0.00 to 0.05
0.05	0.05 to 0.10
0.10	0.10 to 0.15
0.15	0.15 to 0.20
0.20	0.20 to 0.25
0.25	0.25 to 0.30
0.30	0.30 to 0.35
0.35	Above 0.35

Outside Air Temperature (°F)

Code	Range
Less	Below 0
0	0 to 10
10	10 to 20
20	20 to 30
30	30 to 40
40	40 to 50
50	50 to 60
60	60 to 70
70	70 to 80
80	80 to 90
90	Above 90

Altitude (feet)

Code	Range
Less	Below 1000
1000	1000 to 2000
2000	2000 to 5000
5000	5000 to 10,000
10,000	10,000 to 15,000
15,000	15,000 to 20,000
20,000	Above 20,000

Weight (pounds)

Code	Range
Less	Below 20,000
20,000	20,000 to 22,000
22,000	22,000 to 24,000
24,000	24,000 to 26,000
26,000	26,000 to 28,000
28,000	28,000 to 30,000
30,000	30,000 to 32,000
32,000	Above 32,000

Airspeed (knots)

Code	Range
Less	Below 40
40	40 to 60
60	60 to 80
80	80 to 85
85	85 to 90
90	90 to 95
95	95 to 100
100	100 to 105
105	105 to 110
110	110 to 115
115	115 to 120
120	120 to 125
125	125 to 130
130	130 to 135
135	135 to 140
140	Above 140

Gust n_z and Maneuver n_z (g)

Code	Range
Less	Below 0.2
0.2	0.2 to 0.4
0.4	0.4 to 0.5
0.5	0.5 to 0.6
0.6	0.6 to 0.7
0.7	0.7 to 0.8
0.8	0.8 to 1.2
1.2	1.2 to 1.3
1.3	1.3 to 1.4
1.4	1.4 to 1.5
1.5	1.5 to 1.6
1.6	1.6 to 1.7
1.7	1.7 to 1.8
1.8	1.8 to 2.0
2.0	2.0 to 2.2
2.2	2.2 to 2.4
2.4	Above 2.4

Collective & Cyclic Stick Peaks (%)

Code	Range
Less	Below -40
-40	-40 to -30
-30	-30 to -20
-20	-20 to -10
-10	-10 to 10
10	10 to 20
20	20 to 30
30	30 to 40
40	Above 40

Collective & Cyclic Stick Steady (%)

Code	Range
Less	Below 10
10	10 to 20
20	20 to 30
30	30 to 40
40	40 to 50
50	50 to 60
60	60 to 70
70	70 to 80
80	80 to 90
90	Above 90

Thrust Coefficient Ratio

Code	Range
Less	Below 0.06
0.06	0.06 to 0.09
0.09	0.09 to 0.12
0.12	0.12 to 0.15
0.15	Above 0.15

Rotor RPM

Code	Range
Less	Below 210
210	210 to 220
220	220 to 230
230	230 to 240
240	240 to 250
250	Above 250

TABLE III
FLIGHT TIME FOR MISSION SEGMENT VERSUS WEIGHT

TIME(MINUTES) FOR MISSION SEGMENT VS WEIGHT TOTAL

	LESS	20000	22000	24000	26000	28000	30000	32000	TOTAL
ASCENT	61.1	641.0	366.5	22.2	30.7	29.0	16.1	5.1	1173.7
MANUVR	10.0	217.1	297.3		22.0	20.4	69.2	8.5	644.6
DESCNT	138.0	1031.5	349.9	32.4	45.2	46.1	23.4	6.1	1672.6
STEADY	483.8	3520.3	1488.2	246.4	237.3	288.5	213.0	59.7	6457.2
TOTAL	692.9	5409.9	2503.9	301.0	335.2	384.0	321.7	79.5	9948.1

TABLE IV
STEADY-STATE TIME FOR ALTITUDE VERSUS AIRSPEED BY WEIGHT AND TOTAL

TIME(MINUTES) FOR ALTITUDE VS VELOCITY BY WEIGHT LESS

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
LESS	43.7	5.7	32.2	10.4	18.6	17.0	12.6	5.4	2.4	1.3	1.7	1.5	0.6				153.3
1000	14.2	3.5	21.8	22.3	20.2	13.4	8.6	10.1	8.4	14.2	2.3	3.6	3.8				143.5
2000	2.4		7.8	7.6	8.0	12.7	21.8	14.1	9.5	2.5	1.0	12.6	6.7	0.4			107.1
5000																	
10000																	
15000																	
20000																	
TOTAL	60.3	6.2	61.8	40.3	46.8	43.1	43.0	29.7	20.3	18.0	5.1	17.7	11.1	0.4			483.8

TIME(MINUTES) FOR ALTITUDE VS VELOCITY BY WEIGHT 20000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
LESS	231.4	31.8	319.5	213.7	245.5	170.6	114.9	75.4	59.3	61.5	54.1	22.2	9.2	3.8			1652.9
1000	159.8	19.8	227.3	140.1	184.4	145.6	121.4	95.1	72.7	35.9	23.0	11.5	17.5	1.8			1254.9
2000	3.4	6.0	76.6	50.5	66.9	64.8	75.1	94.4	87.7	30.8	25.8	19.0	10.5	1.0			612.6
5000																	
10000																	
15000																	
20000																	
TOTAL	454.6	56.6	623.4	404.4	496.8	381.0	311.4	264.9	219.7	128.3	82.9	52.7	37.2	6.5			3520.3

TIME(MINUTES) FOR ALTITUDE VS VELOCITY BY WEIGHT 22000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
LESS	148.7	21.2	109.6	61.4	73.4	74.1	56.1	45.3	48.0	28.7	12.8	8.2	2.4	0.9			730.7
1000	70.3	9.5	88.5	30.8	33.8	58.2	65.9	29.8	27.6	47.6	35.7	16.6	12.6	1.9			528.7
2000	1.7		36.2	22.1	28.1	23.7	26.3	20.6	21.9	17.0	7.9	7.4	13.0	2.8			228.7
5000																	
10000																	
15000																	
20000																	
TOTAL	260.7	30.7	234.2	114.2	135.3	156.0	148.3	95.7	97.6	93.4	56.5	32.2	28.0	5.5			1488.2

TIME(MINUTES) FOR ALTITUDE VS VELOCITY BY WEIGHT 24000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
LESS	0.7					1.6	6.1	3.3	4.7	1.5	1.5	1.8	1.4	0.3			22.9
1000	5.2	1.6	19.6	4.9	10.7	18.3	16.3	10.2	14.1	25.3	10.3	5.7	2.5				145.0
2000		1.6	9.9	3.2	3.9	9.6	7.1	6.3	9.3	6.7	12.7	6.7	1.5				78.4
5000																	
10000																	
15000																	
20000																	
TOTAL	5.9	3.3	29.4	8.0	14.6	29.6	29.4	19.8	28.1	33.6	24.5	14.3	5.4	0.3			246.4

TABLE IV - contd.

TIME(MINUTES) FOR ALTITUDE VS VELOCITY BY WEIGHT 26000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
LESS	1.6	0.5	13.4	12.4	13.4	24.0	22.1	12.9	8.2	4.4	1.9	3.8	1.1				119.8
1000	0.5		4.9	5.8	6.9	7.2	7.6	8.2	6.3	3.5							50.7
2000			0.8	0.4	1.0	3.7	4.5	7.0	20.7	19.4	9.2						66.7
5000																	
10000																	
15000																	
20000																	
TOTAL	2.1	0.5	19.0	18.6	21.3	34.9	34.2	28.1	35.3	27.3	11.1	3.8	1.1				237.3

TIME(MINUTES) FOR ALTITUDE VS VELOCITY BY WEIGHT 28000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
LESS	7.2	1.6	18.4	10.6	6.7	4.9	5.4	6.2	1.5	1.8	5.2	4.3	1.2	0.2			75.2
1000	5.8	1.1	18.7	20.5	26.5	34.3	46.2	21.6	4.8	2.4	1.0	0.3					183.8
2000	0.5	4.8	11.8	3.2	3.8	0.3	0.4	1.7	2.7	0.8	0.2						30.3
5000																	
10000																	
15000																	
20000																	
TOTAL	13.5	7.4	48.9	34.2	37.1	39.5	52.0	29.5	9.0	5.0	6.4	4.5	1.2	0.2			288.5

TIME(MINUTES) FOR ALTITUDE VS VELOCITY BY WEIGHT 30000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
LESS	21.7		5.3	2.3	0.9	1.1	0.9										32.3
1000	0.9	0.4	20.1	18.5	30.2	31.7	31.8	14.4	8.2	2.8	1.6	2.5	2.3	0.3			165.7
2000				1.0	1.0	2.4	5.0	2.4	1.9	0.6	0.4	0.1					14.9
5000																	
10000																	
15000																	
20000																	
TOTAL	22.6	0.4	25.4	21.9	32.1	35.3	37.7	16.7	10.2	3.5	2.0	2.7	2.3	0.3			213.4

TIME(MINUTES) FOR ALTITUDE VS VELOCITY BY WEIGHT 32000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
LESS	2.0		1.8	1.7	1.1	1.8	3.8	11.5	11.3	9.0	4.9	0.6					44.8
1000			0.5	0.5		0.2	1.8	5.9	2.2	1.9	1.8	0.2					14.9
2000																	
5000																	
10000																	
15000																	
20000																	
TOTAL	2.0		2.2	2.2	1.1	1.2	5.6	17.4	13.5	6.9	6.7	0.9					59.7

TIME(MINUTES) FOR ALTITUDE VS VELOCITY BY WEIGHT TOTAL

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
LESS	557.1	60.8	500.1	312.6	359.7	294.3	221.9	160.0	135.5	104.3	62.1	42.4	16.0	5.2			2832.8
1000	256.6	32.0	401.4	243.3	312.7	308.9	299.6	195.2	144.3	133.7	75.7	40.4	38.8	3.9			2486.6
2000	7.9	12.3	143.0	88.1	112.7	117.3	140.1	146.5	153.9	77.9	57.3	45.8	31.6	4.1			1138.8
5000																	
10000																	
15000																	
20000																	
TOTAL	821.7	105.1	1044.5	644.0	785.1	720.5	661.7	501.8	433.7	316.0	195.1	128.6	86.4	13.2			6457.3

TABLE V
STEADY-STATE TIME FOR COLLECTIVE STICK POSITION VERSUS CYCLIC STICK POSITION BY RATE OF CLIMB AND TOTAL

TIME(MINUTES) FOR COLLECTIVE VS CYCLIC BY CLIMB -1500

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
10											
20						0.3					0.3
30						0.3					0.3
40				0.2	0.1	1.0					1.3
50						0.1					0.1
60											
70											
80											
90											
TOTAL				0.2	0.1	1.7					2.0

TIME(MINUTES) FOR COLLECTIVE VS CYCLIC BY CLIMB -1000

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
10						0.3					0.3
20					1.9	8.3	0.8				11.0
30				0.5	4.5	9.1					14.1
40				2.1	4.4	8.6					15.2
50			0.1	0.2	0.3	2.6					3.2
60						0.1					0.1
70											
80											
90											
TOTAL			0.1	2.8	11.2	29.0	0.8				43.9

TIME(MINUTES) FOR COLLECTIVE VS CYCLIC BY CLIMB -500

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
10					0.1	0.5	0.3				0.9
20					25.5	96.0	40.6	7.8			170.0
30			1.9	22.6	344.8	787.6	126.0	13.4			1296.4
40			2.3	216.7	1105.6	1536.3	149.0	0.6			3010.5
50			3.6	118.8	545.1	1043.6	86.3				1797.4
60				3.3	5.5	31.4					40.3
70											
80											
90											
TOTAL			7.8	361.4	2026.6	3495.3	402.2	21.9			6315.2

TIME(MINUTES) FOR COLLECTIVE VS CYCLIC BY CLIMB 500

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
10											
20					0.3	0.2	0.1				0.6
30					1.7	13.9	0.1				15.6
40				1.4	25.5	23.7	1.2				51.7
50				3.9	6.8	12.8	0.2				23.8
60				0.4	0.7	1.1					2.3
70											
80											
90											
TOTAL				5.7	34.9	51.7	1.6				94.0

TABLE V - contd.

TIME(MINUTES) FOR COLLECTIVE VS CYCLIC BY CLIMB 1000

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
10											
20											
30											
40					1.0	1.1					2.1
50					0.1						0.1
60											
70											
80											
90											
TOTAL					1.1	1.1					2.2

TIME(MINUTES) FOR COLLECTIVE VS CYCLIC BY CLIMB TOTAL

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
10					0.1	0.8	0.3				1.2
20					27.7	104.8	41.5	7.8			181.8
30			1.9	23.1	351.0	810.8	126.0	13.4			1326.4
40			2.3	220.4	1136.5	1570.7	150.2	0.6			3080.8
50			3.7	122.9	552.4	1059.1	86.5				1824.5
60				3.8	6.2	32.7					42.7
70											
80											
90											
TOTAL			7.9	370.1	2073.9	3578.9	404.6	21.9			6457.3

TABLE VI
STEADY-STATE TIME FOR ROTOR RPM VERSUS RATE OF CLIMB BY OUTSIDE AIR TEMPERATURE AND TOTAL

TIME(MINUTES) FOR RPM VS CLIMB BY TEMPERATURE 10

	LESS	-2500	-2000	-1500	-1000	-500	500	1000	1500	2000	2500	TOTAL
LESS												
210												
220												
230						4.7						4.7
240												
250												
TOTAL						4.7						4.7

TIME(MINUTES) FOR RPM VS CLIMB BY TEMPERATURE 20

	LESS	-2500	-2000	-1500	-1000	-500	500	1000	1500	2000	2500	TOTAL
LESS												
210												
220						13.8						13.8
230					0.8	205.1	0.8					206.6
240												
250												
TOTAL					0.8	218.9	0.8					220.4

TABLE VI - contd.

TIME(MINUTES) FOR RPM VS CLIMB BY TEMPERATURE 30

	LESS	-2500	-2000	-1500	-1000	-500	500	1000	1500	2000	2500	TOTAL
LESS												
210												
220					0.2	27.1	0.1					27.4
230				0.3	6.5	573.7	12.6	0.1				593.1
240						4.2						4.2
250												
TOTAL				0.3	6.7	604.9	12.7	0.1				624.7

TIME(MINUTES) FOR RPM VS CLIMB BY TEMPERATURE 40

	LESS	-2500	-2000	-1500	-1000	-500	500	1000	1500	2000	2500	TOTAL
LESS												
210												
220						20.3						20.3
230				0.5	2.9	543.3	5.7	0.3				552.7
240						1.9						1.9
250												
TOTAL				0.5	2.9	565.5	5.7	0.3				574.8

TIME(MINUTES) FOR RPM VS CLIMB BY TEMPERATURE 50

	LESS	-2500	-2000	-1500	-1000	-500	500	1000	1500	2000	2500	TOTAL
LESS												
210						2.3						2.3
220						86.1	1.4					87.5
230				0.1	13.9	1349.1	20.2	0.7				1383.9
240					0.3	13.1	0.6					14.0
250												
TOTAL				0.1	14.2	1450.6	22.2	0.7				1487.7

TIME(MINUTES) FOR RPM VS CLIMB BY TEMPERATURE 60

	LESS	-2500	-2000	-1500	-1000	-500	500	1000	1500	2000	2500	TOTAL
LESS												
210						14.2						14.2
220					0.5	190.5	0.4					191.4
230				1.1	10.4	1446.3	22.0	0.9				1480.7
240						16.4	0.2					16.6
250												
TOTAL				1.1	10.9	1667.4	22.6	0.9				1702.9

TIME(MINUTES) FOR RPM VS CLIMB BY TEMPERATURE 70

	LESS	-2500	-2000	-1500	-1000	-500	500	1000	1500	2000	2500	TOTAL
LESS												
210					0.8	47.7	0.1					48.5
220					0.4	167.7	4.0					172.1
230					5.0	1131.4	13.9					1150.3
240						3.3	0.1					3.4
250												
TOTAL					6.2	1350.1	18.1					1374.4

TIME(MINUTES) FOR RPM VS CLIMB BY TEMPERATURE 80

	LESS	-2500	-2000	-1500	-1000	-500	500	1000	1500	2000	2500	TOTAL
LESS												
210						2.3						2.3
220					0.1	91.9	4.2	0.3				96.5
230					2.3	354.5	7.7					364.5
240												
250												
TOTAL					2.4	448.8	11.9	0.3				463.3

TIME(MINUTES) FOR RPM VS CLIMB BY TEMPERATURE 90

	LESS	-2500	-2000	-1500	-1000	-500	500	1000	1500	2000	2500	TOTAL
LESS												
210												
220						1.2						1.2
230						3.2						3.2
240												
250												
TOTAL						4.3						4.3

TIME(MINUTES) FOR RPM VS CLIMB BY TEMPERATURE TOTAL

	LESS	-2500	-2000	-1500	-1000	-500	500	1000	1500	2000	2500	TOTAL
LESS												
210					0.8	66.5	0.1					67.4
220					1.2	598.6	10.1	0.3				610.1
230				2.0	41.6	5611.3	82.9	1.9				5739.7
240					0.3	38.8	0.8					40.0
250												
TOTAL				2.0	43.9	6315.2	94.0	2.2				6457.3

TABLE VII
STEADY-STATE TIME FOR C_T/σ VERSUS μ BY RATE OF CLIMB AND TOTAL

TIME(MINUTES) FOR CT/S VERSUS MU BY CLIMB -1500

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
LESS										
0.06										
0.09				0.3	0.6	1.0	0.1			2.0
0.12										
0.15										
TOTAL				0.3	0.6	1.0	0.1			2.0

TIME(MINUTES) FOR CT/S VERSUS MU BY CLIMB -1000

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
LESS										
0.06				0.2	0.2					0.5
0.09		0.4	1.2	3.1	18.2	13.5	3.1			39.5
0.12					0.8	1.9	0.1			2.9
0.15					0.1	0.9	0.1			1.1
TOTAL		0.4	1.2	3.3	19.4	16.3	3.4			43.9

TIME(MINUTES) FOR CT/S VERSUS MU BY CLIMB -500

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
LESS										
0.06	2.9	20.5	1.9	0.5	0.2	8.0	3.6			37.6
0.09	105.1	561.1	83.0	158.2	1396.0	2171.2	691.7	17.9		5184.3
0.12	2.6	35.8	7.6	28.7	174.6	466.9	211.4	1.9		929.6
0.15	0.1	4.4	0.3	0.9	30.5	98.4	38.8	0.3		163.7
TOTAL	110.8	621.9	92.9	188.2	1601.3	2734.6	945.5	20.0		6315.2

TABLE VII - contd.

TIME(MINUTES) FOR CT/S VERSUS MU BY CLIMB 500

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
LESS										
0.06					0.6					0.6
0.09		1.2	1.1	3.3	54.8	20.8	4.8			86.0
0.12		0.2		0.2	2.2	1.8	1.0			5.3
0.15			0.1	0.3	0.2	1.3	0.3			2.1
TOTAL		1.4	1.2	3.7	57.8	23.9	6.1			94.0

TIME(MINUTES) FOR CT/S VERSUS MU BY CLIMB 1000

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
LESS										
0.06										
0.09					1.3	0.4	0.1			1.8
0.12					0.4					0.4
0.15										
TOTAL					1.7	0.4	0.1			2.2

TIME(MINUTES) FOR CT/S VERSUS MU BY CLIMB TOTAL

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
LESS										
0.06	2.9	20.5	1.9	0.7	1.0	8.0	3.6			38.7
0.09	105.1	562.7	85.3	164.8	1470.9	2207.0	699.9	17.9		5313.6
0.12	7.6	36.0	7.6	28.9	178.1	470.5	212.5	1.9		938.2
0.15	0.1	4.4	0.4	1.2	30.7	90.6	39.2	0.3		166.9
TOTAL	110.8	623.6	95.2	195.6	1680.7	2776.1	955.2	20.0		6457.3

TABLE VIII
CYCLIC STICK PEAKS VERSUS CYCLIC STICK STEADY BY COLLECTIVE STICK STEADY

CYCLIC PEAKS VS CYCLIC STEADY BY COLL. STEADY 20

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40											
-30											
-20					1	4					5
-10					2	7	2				11
10											
20											
30											
40											
TOTAL					3	11	2				16
TIME	0.	0.	0.	0.	27.7	104.8	41.5	7.8	0.	0.	181.8

TABLE VIII - contd.

CYCLIC PEAKS VS CYCLIC STEADY BY COLL. STEADY 30

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40											
-30						2					2
-20					3	4					7
-10				4	10	24	11				49
10					4	11	2				17
20					3						3
30											
40											
TOTAL				4	20	41	13				78
TIME	0.	0.	1.9	23.1	351.0	810.8	126.0	13.4	0.	0.	1326.4

CYCLIC PEAKS VS CYCLIC STEADY BY COLL. STEADY 40

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40											
-30					2	1		1			4
-20				1	5	11	2				19
-10				7	48	57	2				114
10				3	9	11					23
20							1				1
30											
40											
TOTAL				11	64	80	5	1			161
TIME	0.	0.	2.3	220.4	1136.5	1570.7	150.2	0.6	0.	0.	3080.8

CYCLIC PEAKS VS CYCLIC STEADY BY COLL. STEADY 50

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40											
-30											
-20				1	3	8					12
-10				1	44	44					89
10				2	7	4					13
20											
30											
40											
TOTAL				4	54	56					114
TIME	0.	0.	3.7	122.9	552.4	1059.1	86.5	0.	0.	0.	1824.5

TABLE VIII - contd.

CYCLIC PEAKS VS CYCLIC STEADY BY COLL. STEADY 60

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40											
-30											
-20											
-10											
10						1					1
20											
30											
40											
TOTAL						1					1
TIME	0.	0.	0.	3.8	6.2	32.7	C.	0.	0.	0.	42.7

TABLE IX
CYCLIC STICK PEAKS VERSUS CYCLIC STICK STEADY BY DENSITY ALTITUDE

CYCLIC PEAKS VS CYCLIC STEADY BY ALTITUDE LESS

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40											
-30					2	3		1			6
-20				1	8	15	2				26
-10				9	44	56	7				116
10				4	15	18	2				39
20					3		1				4
30											
40											
TOTAL				14	72	92	12	1			191
TIME	0.	0.	5.1	290.5	797.1	1592.7	136.2	10.3	0.	0.	2831.9

CYCLIC PEAKS VS CYCLIC STEADY BY ALTITUDE 1000

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40											
-30											
-20				1	4	12					17
-10				3	55	69	8				135
10				1	4	9					14
20											
30											
40											
TOTAL				5	63	90	8				166
TIME	0.	0.	2.8	48.6	776.0	1447.7	203.3	8.2	0.	0.	2486.6

TABLE IX - contd.

CYCLIC PEAKS VS CYCLIC STEADY BY ALTITUDE 2000

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40											
-30											
-20											
-10					5	7					12
10					1						1
20											
30											
40											
TOTAL					6	7					13
TIME	0.	0.	0.	31.0	500.8	538.5	65.0	3.4	0.	0.	1138.8

TABLE X
CYCLIC STICK PEAKS VERSUS CYCLIC STICK STEADY BY AIRSPEED

CYCLIC PEAKS VS CYCLIC STEADY BY VELOCITY LESS

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40											
-30					2	3		1			6
-20				1	8	9	1				19
-10				7	31	47	13				98
10				2	13	13	2				30
20					2		1				3
30											
40											
TOTAL				10	56	72	17	1			156
TIME	0.	0.	2.1	37.6	276.8	321.3	165.4	18.5	0.	0.	821.7

CYCLIC PEAKS VS CYCLIC STEADY BY VELOCITY 40

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40											
-30											
-20				1		3	1				5
-10					4	7					11
10					2	1					3
20											
30											
40											
TOTAL				1	6	11	1				19
TIME	0.	0.	0.	11.7	56.5	36.1	0.9	0.	0.	0.	105.1

CYCLIC PEAKS VS CYCLIC STEADY BY VELOCITY 60

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40											
-30											
-20					3	8					11
-10				2	24	23	1				50
10				1	2	5					8
20					1						1
30											
40											
TOTAL				3	3C	36	1				70
TIME	0.	0.	5.1	94.6	420.8	498.5	25.5	0.	0.	0.	1044.5

CYCLIC PEAKS VS CYCLIC STEADY BY VELOCITY 80

	LESS	10	20	30	4C	50	60	70	80	90	TOTAL
LESS											
-40											
-30											
-20					1	2					3
-10				1	12	17	1				31
10					1	1					2
20											
30											
40											
TOTAL				1	14	20	1				36
TIME	0.	0.	0.3	55.1	195.0	375.7	17.9	0.	0.	0.	644.0

CYCLIC PEAKS VS CYCLIC STEADY BY VELOCITY 85

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40											
-30											
-20						2					2
-10				2	13	10					25
10				1	1	1					3
20											
30											
40											
TOTAL				3	14	13					30
TIME	0.	0.	0.	51.4	224.3	482.5	26.5	0.4	0.	0.	785.[illegible]

TABLE X - contd.

CYCLIC PEAKS VS CYCLIC STEADY BY VELOCITY 90

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40											
-30											
-20						1					1
-10					10	13					23
10				1		1					2
20											
30											
40											
TOTAL				1	10	15					26
TIME	0.	0.	0.3	51.1	228.1	405.0	34.5	1.5	0.	0.	720.5

CYCLIC PEAKS VS CYCLIC STEADY BY VELOCITY 95

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40											
-30											
-20											
-10					7	9					16
10					1	4					5
20											
30											
40											
TOTAL					8	13					21
TIME	0.	0.	0.	38.5	212.2	374.2	36.1	0.7	0.	0.	661.7

CYCLIC PEAKS VS CYCLIC STEADY BY VELOCITY 100

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40											
-30											
-20											
-10					3	5					8
10						1					1
20											
30											
40											
TOTAL					3	6					9
TIME	0.	0.	0.	19.1	179.3	286.1	16.6	0.6	0.	0.	501.8

TABLE X - contd.

CYCLIC PEAKS VS CYCLIC STEADY BY VELOCITY 110

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40											
-30											
-20						1					1
-10											
10											
20											
30											
40											
TOTAL						1					1
TIME	0.	0.	0.	1.9	75.5	194.9	43.7	0.	0.	0.	316.0

CYCLIC PEAKS VS CYCLIC STEADY BY VELOCITY 115

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40											
-30											
-20						1					1
-10											
10											
20											
30											
40											
TOTAL						1					1
TIME	0.	0.	0.	0.	39.4	138.4	17.3	0.	0.	0.	195.1

CYCLIC PEAKS VS CYCLIC STEADY BY VELOCITY 120

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40											
-30											
-20											
-10						1					1
10											
20											
30											
40											
TOTAL						1					1
TIME	0.	0.	0.	0.	18.6	109.3	0.7	0.	0.	0.	128.6

TABLE XI
CYCLIC STICK PEAKS VERSUS CYCLIC STICK STEADY BY ROTOR RPM AND TOTAL

CYCLIC PEAKS VS CYCLIC STEADY BY RPM 220

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40											
-30											
-20				1	1	4					6
-10				6	25	11	3				45
10				1	7	4					12
20					1		1				2
30											
40											
TOTAL				8	34	19	4				65
TIME	0.	0.	3.8	47.9	398.7	121.4	36.0	2.4	0.	0.	610.1

CYCLIC PEAKS VS CYCLIC STEADY BY RPM 230

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40											
-30					2	3		1			6
-20				1	11	22	2				36
-10				6	77	121	12				216
10				4	13	23	2				42
20					2						2
30											
40											
TOTAL				11	105	169	16	1			302
TIME	0.	0.	4.1	320.0	1664.2	3428.1	307.9	15.4	0.	0.	5739.7

CYCLIC PEAKS VS CYCLIC STEADY BY RPM 240

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40											
-30											
-20						1					1
-10					2						2
10											
20											
30											
40											
TOTAL					2	1					3
TIME	0.	0.	0.	1.3	10.6	25.5	2.1	0.4	0.	0.	40.0

TABLE XI - contd.

CYCLIC PEAKS VS CYCLIC STEADY BY RPM TOTAL

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40											
-30					2	3		1			6
-20				2	12	27	2				43
-10				12	104	132	15				263
10				5	20	27	2				54
20					3		1				4
30											
40											
TOTAL				19	141	189	20	1			370
TIME	0.	0.	7.9	370.1	2073.9	3578.8	404.6	21.9	0.	0.	6457.2

TABLE XII
CYCLIC STICK PEAKS VERSUS AIRSPEED ACCELERATION BY MISSION SEGMENT

CYCLIC PEAKS VS ACCELERATION BY MISSION SEGMENT ASCENT

	LESS	-15.0	-12.0	-9.0	-6.0	-3.0	3.0	6.0	9.0	12.0	15.0	TOTAL
LESS												
-40												
-30						28	4					32
-20					2	316	22	2				342
-10						430	26					456
10						60	3	1				64
20												
30						1						1
40												
TOTAL					2	835	55	3				895

CYCLIC PEAKS VS ACCELERATION BY MISSION SEGMENT MANUVR

	LESS	-15.0	-12.0	-9.0	-6.0	-3.0	3.0	6.0	9.0	12.0	15.0	TOTAL
LESS												
-40												
-30					1	13						14
-20					6	118	6					130
-10					6	100	1					107
10					4	25	2					31
20												
30												
40												
TOTAL					17	256	9					282

CYCLIC PEAKS VS ACCELERATION BY MISSION SEGMENT DESCNT

	LESS	-15.0	-12.0	-9.0	-6.0	-3.0	3.0	6.0	9.0	12.0	15.0	TOTAL
LESS						1						1
-40						22						22
-30						223						223
-20				1	25	1254	2					1282
-10					21	771	1					793
10					7	98						105
20						8						8
30						1						1
40												
TOTAL				1	53	2378	3					2435

TABLE XIII
CYCLIC STICK PEAKS VERSUS AIRSPEED BY MISSION SEGMENT

CYCLIC PEAKS VS VELOCITY BY MISSION SEGMENT ASCENT

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	[illegible]	140	TOTAL
LESS																	
-40																	
-30	26	4				2											32
-20	231	56	38	3	6	1	2	1	2								342
-10	201	68	116	18	23	11	7	7	2	1							456
10	13	8	20	4	11	2	3	1	2								64
20																	
30	1																1
40																	
TOTAL	472	138	176	25	40	16	12	9	6	1							895

CYCLIC PEAKS VS VELOCITY BY MISSION SEGMENT MANUVA

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
LESS																	
-40																	
-30	11	2	1														14
-20	28	43	36	8	6	2	2	3	1		1						130
-10	7	19	39	8	11	8	7	2	3	2	1						107
10	1	3	10	5	6	2	3		1								31
20																	
30																	
40																	
TOTAL	47	67	86	21	23	12	12	5	5	2	2						282

CYCLIC PEAKS VS VELOCITY BY MISSION SEGMENT DESCNT

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
LESS	1																1
-40	19	3															22
-30	195	20	5	3													223
-20	700	253	265	27	15	11	7	3			1						1282
-10	224	165	279	39	30	30	8	11	4	3							793
10	47	8	28	4	7	5	1	4	1								105
20	5		1	2													8
30	1																1
40																	
TOTAL	1192	443	578	75	52	46	16	18	5	3	1						2435

TABLE XIV
CYCLIC STICK PEAKS VERSUS ROTOR
RPM BY MISSION SEGMENT

CYCLIC PEAKS VS RPM BY MISSION SEGMENT ASCENT

	LESS	210	220	230	240	250	TOTAL
LESS							
-40							
-30			6	26			32
-20			131	202	9		342
-10		1	131	320	4		456
10		3	9	52			64
20							
30				1			1
40							
TOTAL		4	277	601	13		895

CYCLIC PEAKS VS RPM BY MISSION SEGMENT MANUVR

	LESS	210	220	230	240	250	TOTAL
LESS							
-40							
-30			5	9			14
-20		1	35	87	7		130
-10			12	90	5		107
10		2	1	28			31
20							
30							
40							
TOTAL		3	53	214	12		282

CYCLIC PEAKS VS RPM BY MISSION SEGMENT DESCNT

	LESS	210	220	230	240	250	TOTAL
LESS				1			1
-40			10	12			22
-30		1	107	113	2		223
-20		2	431	835	14		1282
-10		5	223	556	8	1	793
10		7	17	80	1		105
20		2	2	4			8
30				1			1
40							
TOTAL		17	790	1602	25	1	2435

TABLE XV
COLLECTIVE STICK PEAKS VERSUS COLLECTIVE STICK STEADY BY CYCLIC STICK STEADY

COLLECTIVE PEAKS VS COLL.STEADY BY CYCLIC STEADY 20

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40											
-30											
-20						1					1
-10											
10											
20											
30											
40											
TOTAL						1					1
TIME	0.	0.	0.	1.9	2.3	3.7	0.	0.	0.	0.	7.9

COLLECTIVE PEAKS VS COLL.STEADY BY CYCLIC STEADY 30

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40											
-30											
-20				2	5	3					10
-10					7	4					11
10					5						5
20											
30											
40											
TOTAL				2	17	7					26
TIME	0.	0.	0.	23.1	220.4	122.9	3.8	0.	0.	0.	370.1

COLLECTIVE PEAKS VS COLL.STEADY BY CYCLIC STEADY 40

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40											
-30				1	1	1					3
-20				6	17	18					41
-10			1	7	13	8	1				30
10			1	1	1	1					4
20											
30											
40											
TOTAL			2	15	32	28	1				78
TIME	0.	0.1	27.7	351.0	1136.5	552.4	6.2	0.	0.	0.	2073.9

TABLE XV - contd.

COLLECTIVE PEAKS VS COLL.STEADY BY CYCLIC STEADY 50

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40					1						1
-30				1	2						3
-20			5	20	14	5					44
-10			2	9	20	7	1				39
10			2	2	1	1					6
20											
30											
40											
TOTAL			9	32	38	13	1				93
TIME	0.	0.8	104.8	810.8	1570.7	1059.1	32.7	0.	0.	0.	3578.9

COLLECTIVE PEAKS VS COLL.STEADY BY CYCLIC STEADY 60

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40											
-30											
-20											
-10					1						1
10											
20											
30											
40											
TOTAL					1						1
TIME	0.	0.3	41.5	126.0	150.2	86.5	0.	0.	0.	0.	404.6

TABLE XVI
COLLECTIVE STICK PEAKS VERSUS COLLECTIVE STICK STEADY BY DENSITY ALTITUDE

COLLECTIVE PEAKS VS COLL. STEADY BY ALTITUDE LESS

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40											
-30				2	3	1					6
-20			4	13	31	23					71
-10			1	5	[illegible]3	9					48
10			2	2	3	2					9
20											
30											
40											
TOTAL			7	22	70	35					134
TIME	0.	1.1	74.8	631.0	1514.0	593.9	17.3	0.	0.	0.	2831.9

TABLE XVI - contd.

COLLECTIVE PEAKS VS COLL. STEADY BY ALTITUDE 1000

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40											
-30											
-20			1	14	4	3					22
-10			2	11	8	10	2				33
10			1	1	3						5
20											
30											
40											
TOTAL			4	26	15	13	2				60
TIME	0.	0.1	81.9	589.8	1021.4	772.3	21.1	0.	0.	0.	2486.6

COLLECTIVE PEAKS VS COLL. STEADY BY ALTITUDE 2000

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40					1						1
-30											
-20				1	1	1					3
-10											
10					1						1
20											
30											
40											
TOTAL				1	3	1					5
TIME	0.	0.	25.1	105.7	545.4	458.3	4.3	0.	0.	0.	1138.8

TABLE XVII
COLLECTIVE STICK PEAKS VERSUS COLLECTIVE STICK STEADY BY AIRSPEED

COLLECTIVE PEAKS VS COLL. STEADY BY VELOCITY LESS

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40											
-30				1		1					2
-20				5	7	8					20
-10			1		13	3	1				18
10			1	1	4	1					7
20											
30											
40											
TOTAL			2	7	24	13	1				47
TIME	0.	0.3	26.8	209.7	454.4	126.8	3.8	0.	0.	0.	821.7

TABLE XVII - contd.

COLLECTIVE PEAKS VS COLL. STEADY BY VELOCITY 40

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40											
-30											
-20			1	3	1	2					7
-10				3	1	2					6
10				1							1
20											
30											
40											
TOTAL			1	7	2	4					14
TIME	0.	0.8	7.6	31.4	46.2	19.0	0.2	0.	0.	0.	105.1

COLLECTIVE PEAKS VS COLL. STEADY BY VELOCITY 60

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40											
-30				1	1						2
-20			3	8	10						21
-10			1	5	3	3					12
10			2	1	1						4
20											
30											
40											
TOTAL			6	15	15	3					39
TIME	0.	0.1	82.0	350.7	457.1	152.3	2.3	0.	0.	0.	1044.5

COLLECTIVE PEAKS VS COLL. STEADY BY VELOCITY 80

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40											
-30					1						1
-20			1	4	1	4					10
-10				2	5	1					8
10											
20											
30											
40											
TOTAL			1	6	7	5					19
TIME	0.	0.	24.8	212.3	305.2	99.6	2.0	0.	0.	0.	644.0

COLLECTIVE PEAKS VS COLL. STEADY BY VELOCITY 85

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40					1						1
-30					1						1
-20				6	6	2					14
-10			1	3	5	6					15
10					2						2
20											
30											
40											
TOTAL			1	9	15	8					33
TIME	0.	0.	21.2	219.1	418.8	122.3	3.8	0.	0.	0.	785.1

COLLECTIVE PEAKS VS COLL. STEADY BY VELOCITY 90

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40											
-30											
-20				2	4	3					9
-10				2	6		1				9
10						1					1
20											
30											
40											
TOTAL				4	10	4	1				19
TIME	0.	0.	10.9	123.0	414.8	167.6	4.3	0.	0.	0.	720.5

COLLECTIVE PEAKS VS COLL. STEADY BY VELOCITY 95

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40											
-30											
-20					3	4					7
-10					4	4					8
10											
20											
30											
40											
TOTAL					7	8					15
TIME	0.	0.	5.8	54.8	403.9	189.1	8.1	0.	0.	0.	661.7

COLLECTIVE PEAKS VS COLL. STEADY BY VELOCITY 100

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40											
-30											
-20						1					1
-10					2						2
10											
20											
30											
40											
TOTAL					2	1					3
TIME	C.	0.	2.0	26.7	261.6	207.0	4.4	0.	0,	0.	501.8

COLLECTIVE PEAKS VS COLL. STEADY BY VELCCITY 105

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40											
-30											
-20					3	1					4
-10					1						1
10											
20											
30											
40											
TOTAL					4	1					5
TIME	0.	0.	0.7	34.5	168.4	226.1	4.0	0.	0.	0.	433.7

COLLECTIVE PEAKS VS COLL. STEADY BY VELOCITY 110

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40											
-30											
-20						2					2
-10					1						1
10											
20											
30											
40											
TOTAL					1	2					3
TIME	0.	0.	0.	55.6	71.2	183.2	6.0	0.	0.	0.	316.0

COLLECTIVE PEAKS VS COLL. STEADY BY VELOCITY 115

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40											
-30											
-20											
-10				1							1
10											
20											
30											
40											
TOTAL				1							1
TIME	0.	0.	0.	8.2	47.8	137.3	1.8	0.	0.	0.	195.1

COLLECTIVE PEAKS VS COLL. STEADY BY VELOCITY 125

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40											
-30											
-20					1						1
-10											
10											
20											
30											
40											
TOTAL					1						1
TIME	0.	0.	0.	0.	7.3	77.4	1.7	0.	0.	0.	86.4

TABLE XVIII
COLLECTIVE STICK PEAKS VERSUS COLLECTIVE STICK STEADY BY ROTOR RPM AND TOTAL

COLLECTIVE PEAKS VS COLL. STEADY BY RPM 220

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40											
-30											
-20				6	3						9
-10				1	2	1	1				5
10					3						3
20											
30											
40											
TOTAL				7	8	1	1				17
TIME	0.	0.3	7.3	126.1	354.0	120.6	1.9	0.	0.	0.	610.1

COLLECTIVE PEAKS VS COLL. STEADY BY RPM 230.

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40					1						1
-30				2	3	1					6
-20			5	22	33	27					87
-10			3	15	39	18	1				76
10			3	3	4	2					12
20											
30											
40											
TOTAL			11	42	80	48	1				182
TIME	0.	0.9	137.1	1168.8	2700.6	1692.4	40.0	0.	0.	0.	5739.7

COLLECTIVE PEAKS VS COLL. STEADY BY RPM TOTAL

	LESS	10	20	30	40	50	60	70	80	90	TOTAL
LESS											
-40					1						1
-30				2	3	1					6
-20			5	28	36	27					96
-10			3	16	41	19	2				81
10			3	3	7	2					15
20											
30											
40											
TOTAL			11	49	88	49	2				199
TIME	0.	1.2	181.8	1326.4	3080.7	1824.5	42.7	0.	0.	0.	6457.2

TABLE XIX
COLLECTIVE STICK PEAKS VERSUS AIRSPEED ACCELERATION BY MISSION SEGMENT

COLLECTIVE PEAKS VS ACCELERATION BY MISS. SEG. ASCENT

	LESS	-15.0	-12.0	-9.0	-6.0	-3.0	3.0	6.0	9.0	12.0	15.0	TOTAL
LESS												
-40												
-30						2						2
-20					1	25						26
-10					1	119	13	1				134
10						205	23	3				231
20						11	4					15
30												
40												
TOTAL					2	362	40	4				408

COLLECTIVE PEAKS VS ACCELERATION BY MISS. SEG. MANUVR

	LESS	-15.0	-12.0	-9.0	-6.0	-3.0	3.0	6.0	9.0	12.0	15.0	TOTAL
LESS												
-40						2						2
-30					8	12						20
-20					19	138						157
-10					5	110	4					119
10						115	3					118
20						3	1					4
30												
40												
TOTAL					32	380	8					420

COLLECTIVE PEAKS VS ACCELERATION BY MISS. SEG. DESCNT

	LESS	-15.0	-12.0	-9.0	-6.0	-3.0	3.0	6.0	9.0	12.0	15.0	TOTAL
LESS					2	3						5
-40					7	32						39
-30				2	66	315						383
-20				2	45	869	2					918
-10					7	310	1					318
10						122						122
20						11						11
30						1						1
40												
TOTAL				4	127	1663	3					1797

TABLE XX
COLLECTIVE STICK PEAKS VERSUS AIRSPEED BY MISSION SEGMENT

COLLECTIVE PEAKS VS VELOCITY BY MISSION SEGMENT ASCENT

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
LESS																	
-40																	
-30	1		1														2
-20	6	3	10	3	1	1	2										26
-10	59	25	22	3	9	8	3	2	1		1	1					134
10	136	32	21	8	5	6	8	5	5	4	1						231
20	6	5							1	1	1	1					15
30																	
40																	
TOTAL	208	65	54	14	15	15	13	7	7	5	3	2					408

COLLECTIVE PEAKS VS VELOCITY BY MISSION SEGMENT MANUVR

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
LESS																	
-40		1			1												2
-30	1	6	8	1	2	2											20
-20	2	11	82	26	5	21	4	4	1	1							157
-10	3	14	28	14	15	11	9	13	8	3	1						119
10	11	7	21	13	4	11	15	13	9	9	2	1	1		1		118
20	3						1										4
30																	
40																	
TOTAL	20	39	139	54	27	45	29	30	18	13	3	1	1		1		420

COLLECTIVE PEAKS VS VELOCITY BY MISSION SEGMENT DESCNT

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
LESS		1	3			1											5
-40	5	16	11	4	1	2											39
-30	49	202	113	7	5	7											383
-20	141	283	337	61	46	24	17	7	1					1			918
-10	109	43	94	16	11	15	13	9	4	3	1						318
10	110	6	3						1		1	1					122
20	11																11
30	1																1
40																	
TOTAL	426	551	561	88	63	49	30	16	6	3	2	1		1			1797

TABLE XXI
COLLECTIVE STICK PEAKS VERSUS ROTOR
RPM BY MISSION SEGMENT

COLLECTIVE PEAKS VS RPM BY MISSION SEGMENT ASCENT

	LESS	210	220	230	240	250	TOTAL
LESS							
-40							
-30				2			2
-20		5	3	18			26
-10		3	38	88	5		134
10			68	155	8		231
20			8	7			15
30							
40							
TOTAL		8	117	270	13		408

COLLECTIVE PEAKS VS RPM BY MISSION SEGMENT MANUVR

	LESS	210	220	230	240	250	TOTAL
LESS							
-40				2			2
-30		1	1	17	1		20
-20		7	8	129	13		157
-10			24	88	7		119
10			28	88	2		118
20				4			4
30							
40							
TOTAL		8	61	328	23		420

COLLECTIVE PEAKS VS RPM BY MISSION SEGMENT DESCNT

	LESS	210	220	230	240	250	TOTAL
LESS				4	1		5
-40		1	2	34	2		39
-30		10	42	323	8		383
-20		10	159	731	18		918
-10		1	107	203	7		318
10		1	42	77	1	1	122
20			6	5			11
30				1			1
40							
TOTAL		23	358	1378	37	1	1797

TABLE XXII
GUST n_z VERSUS AIRSPEED BY MISSION SEGMENT BY ALTITUDE BY GROSS WEIGHT

NZ GUST PEAKS VS VEL. BY MISS. SEG. ASCENT, ALT. LESS, WGT. 20000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3			2														2
1.2			1	4		1											6
0.8																	
0.7		2	3														5
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL		2	6	4		1											13

NZ GUST PEAKS VS VEL. BY MISS. SEG. ASCENT, ALT. LESS, WGT. 22000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2			6														
0.8																	
0.7																	
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL			6														6

NZ GUST PEAKS VS VEL. BY MISS. SEG. ASCENT, ALT. LESS, WGT. 26000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2																	
0.8																	
0.7							1										1
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL							1										1

NZ GUST PEAKS VS VEL. BY MISS. SEG. ASCENT, ALT. LESS, WGT. 20000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2								1	1								2
0.8																	
0.7							1		1								2
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL							1	1	2								4

NZ GUST PEAKS VS VEL. BY MISS. SEG. ASCENT, ALT. LESS, WGT. 30000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2			1														1
0.8																	
0.7			1														1
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL			2														2

NZ GUST PEAKS VS VEL. BY MISS. SEG. ASCENT, ALT. 1000, WGT. LESS

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2					2												2
0.8																	
0.7																	
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL					2												2

NZ GUST PEAKS VS VEL. BY MISS. SEG. ASCENT, ALT. 1000, WGT. 20000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2			2														2
0.8																	
0.7					1		1	1									3
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL			2		1		1	1									5

NZ GUST PEAKS VS VEL. BY MISS. SEG. ASCENT, ALT. 1000, WGT. 22000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2																	
0.8																	
0.7			1					1									2
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL			1					1									2

NZ GUST PEAKS VS VEL. BY MISS. SEG. ASCENT, ALT. 1000, WGT. 28000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2																	
0.8																	
0.7									2								2
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL									2								2

NZ GUST PEAKS VS VEL. BY MISS. SEG. ASCENT, ALT. 1000, WGT. 30000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2			2	1													3
0.8																	
0.7																	
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL			2	1													3

NZ GUST PEAKS VS VEL. BY MISS. SEG. ASCENT, ALT. 2000, WGT. 20000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2					1												1
0.8																	
0.7																	
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL					1												1

NZ GUST PEAKS VS VEL. BY MISS. SEG. MANUVR. ALT. LESS. WGT. 20000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.-																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2			2	1	1	2	4	12	6	1			1				30
0.8																	
0.7				1	7	4	4	7	2	1							26
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL			2	2	8	6	8	19	8	2			1				56

NZ GUST PEAKS VS VEL. BY MISS. SEG. MANUVR. ALT. LESS. WGT. 22000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2											2						2
0.8																	
0.7			1			1											2
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL			1			1					2						4

NZ GUST PEAKS VS VEL. BY MISS. SEG. MANUVR. ALT. 1000. WGT. 20000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2							1	1									2
0.8																	
0.7									1								1
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL							1	1	1								3

NZ GUST PEAKS VS VEL. BY MISS. SEG. MANUVR. ALT. 1000. WGT. 26000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2						1		2	1								4
0.8																	
0.7								1									1
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL						1		3	1								5

TABLE XXII - contd.

NZ GUST PEAKS VS VEL. BY MISS. SEG. MANUVR. ALT. 1000. WGT. 20000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2						1											1
0.8																	
0.7					1												1
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL					1	1											2

NZ GUST PEAKS VS VEL. BY MISS. SEG. MANUVR. ALT. 2000. WGT. 20000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2																	
0.8																	
0.7				1	1												2
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL				1	1												2

NZ GUST PEAKS VS VEL. BY MISS. SEG. DESCNT. ALT. LESS. WGT. LESS

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2					1												1
0.8																	
0.7																	
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL					1												1

NZ GUST PEAKS VS VEL. BY MISS. SEG. DESCNT. ALT. LESS. WGT. 20000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3					2												2
1.2		3	1	1	3	6		2	1								17
0.8																	
0.7		5	4	1	2	2	3			1							18
0.6				2				2									4
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL		8	5	4	7	8	3	4	1	1							41

NZ GUST PEAKS VS VEL. BY MISS. SEG. DESCNT, ALT. LESS, WGT. 22000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2		2	5					1									8
0.8																	
0.7			3														3
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL		2	8					1									1

NZ GUST PEAKS VS VEL. BY MISS. SEG. DESCNT, ALT. LESS, WGT. 28000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2			2														2
0.8																	
0.7			1														1
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL			3														3

NZ GUST PEAKS VS VEL. BY MISS. SEG. DESCNT, ALT. 1000, WGT. LESS

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2			1														1
0.8																	
0.7																	
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL			1														1

NZ GUST PEAKS VS VEL. BY MISS. SEG. DESCNT, ALT. 1000, WGT. 20000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2					1												1
0.8																	
0.7				1	1	1											3
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL				1	2	1											4

TABLE XXII - contd.

NZ GUST PEAKS VS VEL. BY MISS. SEG. DESCNT. ALT. 1000, WGT. 28000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2				1													1
0.8																	
0.7			1														1
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL			1	1													2

NZ GUST PEAKS VS VEL. BY MISS. SEG. DESCNT. ALT. 1000, WGT. 300C

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2			3	1	1												5
0.8																	
0.7																	
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL			3	1	1												5

NZ GUST PEAKS VS VEL. BY MISS. SEG. DESCNT. ALT. 1000, WGT. 32000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2			1			1											2
0.8																	
0.7																	
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL			1			1											2

NZ GUST PEAKS VS VEL. BY MISS. SEG. DESCNT, ALT. 2000, WGT. 26000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2				1													1
0.8																	
0.7																	
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL				1													1

NZ GUST PEAKS VS VEL. BY MISS. SEG. STEADY, ALT. LESS, WGT. LESS

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2						3	1	1		1	1						7
0.8																	
0.7						1	1	1		1							4
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL						4	2	2		2	1						11
TIME	43.7	5.7	32.2	10.4	18.6	17.0	12.6	5.4	2.4	1.3	1.7	1.5	0.6	0.	0.	0.	153.3

NZ GUST PEAKS VS VEL. BY MISS. SEG. STEADY, ALT. LESS, WGT. 20000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4										2							2
1.3			7	4		2	1	4	4	2			2				26
1.2		2	17	21	18	21	23	21	20	15	11	14	5	1			189
0.8																	
C.7		4	24	21	14	19	19	12	14	19	16	9	2				173
0.6			4	1				3			2						10
0.5									4	4							8
0.4																	
C.2																	
LESS																	
TOTAL		6	52	47	32	42	43	40	42	42	29	23	9	1			408
TIME	291.4	31.8	319.5	213.7	245.5	170.6	114.9	75.4	59.3	41.5	34.1	22.2	9.2	3.8	C.	0.	1652.9

NZ GUST PEAKS VS VEL. BY MISS. SEG. STEADY, ALT. LESS, WGT. 22000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4												2					2
1.3						4	1				1	2					8
1.2		2	14	10	9	3	4	4	5	2	6	4	1				64
0.8																	
0.7		1	13	1	12	6	2	4	5	5	-	4	2	1			58
0.6										3							3
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL		3	27	11	21	13	7	8	10	10	9	12	3	1			135
TIME	188.7	21.2	109.6	61.4	73.4	74.1	56.1	45.3	48.0	28.7	12.8	8.2	2.4	0.9	0.	0.	730.7

TABLE XXII - contd.

NZ GUST PEAKS VS VEL. BY MISS. SEG. STEADY, ALT. LESS, WGT. 24000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3									1								1
1.2										1	1						2
0.8																	
0.7									1								1
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL									2	1	1						4
TIME	0.7	0.	0.	0.	0.	1.6	6.1	3.3	4.7	1.5	1.5	1.8	1.4	0.3	0.	0.	22.9

NZ GUST PEAKS VS VEL. BY MISS. SEG. STEADY, ALT. LESS, WGT. 26000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3								1									1
1.2																	
0.8																	
0.7										1							1
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL								1		1							2
TIME	1.6	0.5	13.4	12.4	13.4	24.0	22.1	12.9	8.2	4.4	1.9	3.8	1.1	0.	0.	0.	119.8

NZ GUST PEAKS VS VEL. BY MISS. SEG. STEADY, ALT. LESS, WGT. 28000

	LESS	.0	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2			1														1
0.8																	
0.7									1								1
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL			1						1								2
TIME	7.2	1.6	10.4	10.6	6.7	4.9	[illegible]	6.2	1.5	1.8	5.2	4.3	1.2	0.2	0.	0.	75.2

NZ GUST PEAKS VS VEL. BY MISS. SEG. STEADY, ALT. LESS, WGT. 32000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2																	
0.8																	
0.7										1							1
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL										1							1
TIME	2.0	0.	1.6	1.7	1.1	1.0	3.8	11.5	11.3	5.0	4.9	0.6	0.	0.	0.	0.	44.8

NZ GUST PEAKS VS VEL. BY MISS. SEG. STEADY, ALT. 1000, WGT. LESS

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2							1										1
0.8																	
0.7									1	1	1	2					5
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL							1		1	1	1	2					6
TIME	14.2	3.5	21.8	22.3	20.2	13.4	8.6	10.1	8.4	14.2	2.3	3.6	3.8	0.	0.	0.	143.5

NZ GUST PEAKS VS VEL. BY MISS. SEG. STEADY, ALT. 1000, WGT. 20000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2			6	2		5	3	4	4	5	4	2					35
0.8																	
0.7			7	5	4	2		1	3	5	7						34
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL			13	7	4	7	3	5	7	10	11	2					69
TIME	159.8	18.8	227.3	140.1	184.4	145.6	121.4	95.1	72.7	35.9	23.0	11.5	17.5	1.8	0.	0.	1254.9

NZ GUST PEAKS VS VEL. BY MISS. SEG. STEADY, ALT. 1000, WGT. 22000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3													1				1
1.2					2			2	2	2			1				9
0.8																	
0.7					1		2	2	2	3	2	2					14
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL					3		2	4	4	5	2	2	2				24
TIME	70.3	9.5	88.5	30.8	33.8	58.2	65.9	29.8	27.6	47.6	35.7	16.6	12.6	1.9	0.	0.	528.7

NZ GUST PEAKS VS VEL. BY MISS. SEG. STEADY, ALT. 1000, WGT. 24000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2						1						1					2
0.8																	
0.7								1					1				2
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL						1		1				1	1				4
TIME	5.2	1.8	19.6	4.9	10.7	18.3	16.3	10.2	14.1	25.3	10.3	5.7	2.5	0.	0.	0.	145.0

NZ GUST PEAKS VS VEL. BY MISS. SEG. STEADY, ALT. 1000, WGT. 26000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2									1								1
0.8																	
0.7																	
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL									1								1
TIME	0.5	0.	4.9	5.8	6.9	7.2	7.6	8.2	6.3	3.5	0.	0.	0.	0.	0.	0.	50.7

NZ GUST PEAKS VS VEL. BY MISS. SEG. STEADY, ALT. 1000, WGT. 28000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2			2	2	1	1	10			1	1						18
0.8																	
0.7			2		4		1.	1		3		1					24
0.6										1							1
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL			4	2	5	1	23	1		5	1	1					43
TIME	5.8	1.1	18.7	20.5	26.5	34.3	46.2	21.6	4.8	2.4	1.0	0.3	0.	0.	0.	0.	183.0

NZ GUST PEAKS VS VEL. BY MISS. SEG. STEADY, ALT. 1000, WGT. 30000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3					1	1											2
1.2			4	7	5	8	2	2									28
0.8																	
0.7			3	3	5	4	2										17
0.6						1											1
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL			7	10	11	14	4	2									48
TIME	0.9	0.4	20.1	18.5	30.2	31.7	31.8	14.4	8.2	2.8	1.6	2.5	2.3	0.3	0.	0.	165.7

NZ GUST PEAKS VS VEL. BY MISS. SEG. STEADY, ALT. 1000, WGT. 32000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2							1										1
0.8																	
0.7																	
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL							1										1
TIME	0.	0.	0.5	0.5	0.	0.2	1.8	5.9	2.2	1.9	1.8	0.2	0.	0.	0.	0.	14.9

NZ GUST PEAKS VS VEL. BY MISS. SEG. STEADY, ALT. 2000, WGT. LESS

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2						1											1
0.8																	
0.7																	
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL						1											1
TIME	2.4	0.	7.8	7.6	8.0	12.7	21.8	14.1	9.5	2.5	1.0	12.6	6.7	0.4	0.	0.	107.1

NZ GUST PEAKS VS VEL. BY MISS. SEG. STEADY, ALT. 2000, WGT. 20000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2			1				1			2	1						5
0.8																	
0.7						1			2	2	5						10
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL			1			1	1		2	4	6						15
TIME	3.4	6.0	76.6	50.5	66.9	64.8	75.1	94.4	87.7	30.8	25.8	19.0	10.5	1.0	0.	0.	612.6

NZ GUST PEAKS VS VEL. BY MISS. SEG. STEADY, ALT. 2000, WGT. 22000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2										1	2						3
0.8																	
0.7									1	1							2
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL									1	2	2						5
TIME	1.7	0.	36.2	22.1	28.1	23.7	26.3	20.6	21.9	17.0	7.9	7.4	13.0	2.8	0.	0.	228.7

TABLE XXII - contd.

NZ GUST PEAKS VS VEL. BY MISS. SEG. STEADY, ALT. 2000 WGT. 28000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2					1	1											2
0.8																	
0.7																	
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL					1	1											2
TIME	0.5	4.8	11.8	3.2	3.8	0.3	0.4	1.7	2.7	0.8	0.2	0.	0.	0.	0.	0.	30.3

TABLE XXIII
GUST n_z VERSUS μ BY MISSION SEGMENT BY ALTITUDE BY C_T/σ

NZ GUST PEAKS VS MU BY MISS. SEG. ASCENT, ALT. LESS, CT/S 0.09

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3					2					2
1.2					11	1				12
0.8										
0.7			2	3						5
0.6										
0.5										
0.4										
0.2										
LESS										
TOTAL			2	3	13	1				19

NZ GUST PEAKS VS MU BY MISS. SEG. ASCENT, ALT. LESS, CT/S 0.12

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3										
1.2					1	2				3
0.8										
0.7					1	3				4
0.6										
0.5										
0.4										
0.2										
LESS										
TOTAL					2	5				7

TABLE XXIII - contd.

NZ GUST PEAKS VS MU BY MISS. SEG. ASCENT, ALT. 1000, CT/S 0.09

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3										
1.2					2	2				4
0.8										
0.7					1	3				4
0.6										
0.5										
0.4										
0.2										
LESS										
TOTAL					3	5				8

NZ GUST PEAKS VS MU BY MISS. SEG. ASCENT, ALT. 1000, CT/S 0.12

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3										
1.2					3					3
0.8										
0.7						3				3
0.6										
0.5										
0.4										
0.2										
LESS										
TOTAL					3	3				6

TABLE XXIII - contd.

NZ GUST PEAKS VS MU BY MISS. SEG. ASCENT, ALT. 2000, CT/S 0.09

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3										
1.2						1				1
0.8										
0.7										
0.6										
0.5										
0.4										
0.2										
LESS										
TOTAL						1				1

NZ GUST PEAKS VS MU BY MISS. SEG. MANUVR, ALT. LESS, CT/S 0.06

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3										
1.2							1			1
0.8										
0.7										
0.6										
0.5										
0.4										
0.2										
LESS										
TOTAL							1			1

TABLE XXIII - contd.

NZ GUST PEAKS VS MU BY MISS. SEG. MANUVR, ALT. LESS, CT/S 0.09

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3										
1.2					2	18	11			31
0.8										
0.7					2	22	4			28
0.6										
0.5										
0.4										
0.2										
LESS										
TOTAL					4	40	15			59

NZ GUST PEAKS VS MU BY MISS. SEG. MANUVR, ALT. 1000, CT/S 0.09

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3										
1.2						2				2
0.8										
0.7						1				1
0.6										
0.5										
0.4										
0.2										
LESS										
TOTAL						3				3

TABLE XXIII - contd.

NZ GUST PEAKS VS MU BY MISS. SEG. MANUVR, ALT. 1000, CT/S 0.12

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3										
1.2						5				5
0.8										
0.7						2				2
0.6										
0.5										
0.4										
0.2										
LESS										
TOTAL						7				7

NZ GUST PEAKS VS MU BY MISS. SEG. MANUVR, ALT. 2000, CT/S 0.09

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3										
1.2										
0.8										
0.7						2				2
0.6										
0.5										
0.4										
0.2										
LESS										
TOTAL						2				2

TABLE XXIII - contd.

NZ GUST PEAKS VS MU BY MISS. SEG. DESCNT, ALT. LESS, CT/S 0.09

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3						2				2
1.2			4	3	5	13	1			26
0.8										
0.7				7	6	7	1			21
0.6					2	2				4
0.5										
0.4										
0.2										
LESS										
TOTAL			4	10	13	24	2			53

NZ GUST PLAKS VS MU HY MISS. SEG. CESCNT, ALT. LESS, CT/S C.12

	LESS	0.CO	0.05	0.10	0.15	C.2C	0.25	0.30	C.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3										
1.2					2					2
0.8										
C.7					1					1
0.6										
0.5										
0.4										
C.2										
LESS										
TOTAL					3					3

TABLE XXIII - contd.

NZ GUST PEAKS VS MU BY MISS. SEG. DESCNT, ALT. 1000, CT/S 0.09

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3										
1.2					2					2
0.8										
0.7					1	1				2
0.6										
0.5										
0.4										
0.2										
LESS										
TOTAL					3	1				4

NZ GUST PEAKS VS MU BY MISS. SEG. DESCNT, ALT. 1000, CT/S 0.12

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3										
1.2					5					5
0.8										
0.7					1	1				2
0.6										
0.5										
0.4										
0.2										
LESS										
TOTAL					6	1				7

TABLE XXIII - contd.

NZ GUST PEAKS VS MU BY MISS. SEG. DESCNT, ALT. 1000, CT/S 0.15

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3										
1.2					2	1				3
0.8										
0.7										
0.6										
0.5										
0.4										
0.2										
LESS										
TOTAL					2	1				3

NZ GUST PEAKS VS MU BY MISS. SEG. DESCNT, ALT. 2000, CT/S 0.12

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3										
1.2					1					1
0.8										
0.7										
0.6										
0.5										
0.4										
0.2										
LESS										
TOTAL					1					1

TABLE XXIII - contd.

NZ GUST PEAKS VS MU BY MISS. SEG. STEADY, ALT. LESS, CT/S 0.06

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3										
1.2						3				3
0.8										
0.7						1				1
0.6										
0.5										
0.4										
0.2										
LESS										
TOTAL						4				4
TIME	2.9	20.5	1.9	0.7	1.0	8.0	3.6	0.	0.	38.7

NZ GUST PEAKS VS MU BY MISS. SEG. STEADY, ALT. LESS, CT/S 0.09

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4							4			4
1.3					11	14	9			34
1.2				5	64	121	66	1		257
0.8										
0.7				6	58	98	69	1		234
0.6					5	3	5			13
0.5						2	6			8
0.4										
0.2										
LESS										
TOTAL				13	138	238	159	2		550
TIME	64.5	389.4	50.7	93.4	745.6	916.0	238.9	3.8	0.	2502.3

TABLE XXIII - contd.

NZ GUST PEAKS VS MU BY MISS. SEG. STEADY, ALT. LESS, CT/S 0.12

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3						2				2
1.2					1		2			3
0.8										
0.7						1	2			3
0.6										
0.5										
0.4										
0.2										
LESS										
TOTAL					1	3	4			8
TIME	0.	24.7	5.1	2.6	56.9	109.0	37.4	0.2	0.	235.9

NZ GUST PEAKS VS MU BY MISS. SEG. STEADY, ALT. LESS, CT/S 0.15

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3										
1.2										
0.8										
0.7							1			1
0.6										
0.5										
0.4										
0.2										
LESS										
TOTAL							1			1
TIME	0.	3.2	0.2	0.6	9.2	23.3	18.5	0.	0.	55.1

TABLE XXIII - contd.

NZ GUST PEAKS VS MU BY MISS. SEG. STEADY, ALT. 1000, CT/S 0.09

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3							1			1
1.2					8	18	19			45
0.8										
0.7					13	13	28			54
0.6										
0.5										
0.4										
0.2										
LESS										
TOTAL					1	31	48			100
TIME	35.7	171.9	33.3	57.4	535.0	801.8	271.8	4.9	0.	1911.9

NZ GUST PEAKS VS MU BY MISS. SEG. STEADY, ALT. 1000, CT/S 0.12

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3					1	1				2
1.2				1	15	24	2			42
0.8										
0.7					13	22	4			39
0.6						1	1			2
0.5										
0.4										
0.2										
LESS										
TOTAL				1	29	48	7			85
TIME	2.6	11.4	2.5	7.4	98.5	285.9	70.4	0.	0.	478.8

TABLE XXIII - contd.

NZ GUST PEAKS VS MU BY MISS. SEG. STEADY, ALT. 1000, CT/S 0.15

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3										
1.2					2	6				8
0.8										
0.7					1	2				3
0.6										
0.5										
0.4										
0.2										
LESS										
TOTAL					3	8				11
TIME	0.1	0.7	0.2	0.5	19.9	55.7	18.6	0.3	0.	95.9

NZ GUST PEAKS VS MU BY MISS. SEG. STEADY, ALT. 2000, CT/S 0.09

	LESS	0.CO	0.05	0.10	0.15	C.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3										
1.2					1	1	6			8
0.8										
0.7						1	8			9
0.6										
0.5										
0.4										
0.2										
LESS										
TOTAL					1	2	14			17
TIME	4.9	1.4	1.2	14.0	190.3	489.3	189.2	9.1	0.	859.4

TABLE XXIII - contd.

NZ GUST PEAKS VS MU BY MISS. SEG. STEADY, ALT. 2000, CT/S 0.12

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3										
1.2					1	2				3
0.8										
0.7						1	2			3
0.6										
0.5										
0.4										
0.2										
LESS										
TOTAL					1	3	2			6

TABLE XXIV
GUST n_z VERSUS μ BY MISSION SEGMENT

NZ GUST PEAKS VS MU BY MISS. SEG. ASCENT

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3					2					2
1.2					17	6				23
0.8										
0.7			2	3	2	9				16
0.6										
0.5										
0.4										
0.2										
LESS										
TOTAL			2	3	21	15				41

TABLE XXIV - contd.

NZ GUST PEAKS VS MU BY MISS. SEG. MANUVR

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TCTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3										
1.2					2	25	12			39
0.8										
0.7					2	27	4			33
0.6										
C.5										
0.4										
0.2										
LESS										
TOTAL					4	52	16			72

NZ GUST PEAKS VS MU BY MISS. SEG. DESCNT

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	C.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3						2				2
1.2			4	3	17	14	1			39
0.8										
0.7				7	9	9	1			26
0.6					2	2				4
0.5										
0.4										
C.2										
LESS										
TOTAL			4	10	28	27	2			71

TABLE XXIV - contd.

NZ GUST PEAKS VS MU BY MISS. SEG. STEADY

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4							4			4
1.3					12	17	10			39
1.2				6	92	175	95	1		369
0.8										
0.7				8	85	139	114	1		347
0.6					5	4	6			15
0.5						2	6			8
0.4										
0.2										
LESS										
TOTAL				14	194	337	235	2		782
TIME	110.8	623.6	95.2	195.6	1680.7	2776.1	955.2	20.0	0.	6457.3

TABLE XXV
GUST n_z VERSUS AIRSPEED BY MISSION SEGMENT

NZ GUST PEAKS VS VEL. BY MISS. SEG. ASCENT

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3			2														2
1.2			12	5	3	1		1	1								23
0.8																	
0.7		2	5		1		3	2	3								16
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL		2	19	5	4	1	3	3	4								41

TABLE XXV - contd.

NZ GUST PEAKS VS VEL. BY MISS. SEG. MANUVR

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2			2	1	1	4	5	15	7	1	2		1				39
0.8																	
0.7			1	2	9	5	4	8	3	1							33
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL			3	3	10	9	9	23	10	2	2		1				72

NZ GUST PEAKS VS VEL. BY MISS. SEG. DESCNT

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3					2												2
1.2		5	13	4	6	7		3	1								39
0.8																	
0.7		5	9	2	3	3	3			1							26
0.6				2				2									4
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL		10	22	8	11	10	3	5	1	1							71

NZ GUST PEAKS VS VEL. BY MISS. SEG. STEADY

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4										2		2					4
1.3			7	4	1	7	2	5	5	2	1	2	3				39
1.2		4	45	42	36	44	46	34	32	30	27	21	7	1			369
0.8																	
0.7		5	49	30	40	33	39	22	30	42	33	18	5	1			347
0.6			4	1		1		3		4	2						15
0.5									4	4							8
0.4																	
0.2																	
LESS																	
TOTAL		9	105	77	77	85	87	64	71	84	63	43	15	2			782
TIME	821.7	105.1	1044.5	644.0	785.1	720.5	661.7	501.8	433.7	316.0	195.1	128.6	86.4	13.2	0.	0.	6457.3

TABLE XXVI
GUST n_z VERSUS μ

NZ GUST PEAKS VS MU COMPOSITE

	LESS	0.00	0.05	0..0	0.15	C.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4							4			4
1.3					14	19	10			43
1.2			4	9	128	220	108	1		470
0.8										
0.7			2	18	98	184	119	1		422
0.6					7	6	6			19
0.5						2	6			8
0.4										
0.2										
LESS										
TOTAL			6	27	247	431	253	2		966

TABLE XXVII
GUST n_z VERSUS AIR.PEED

NZ GUST PEAKS VS VELOCITY COMPOSITE

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4										2		2					4
1.3			9	4	3	7	2	5	5	2	1	2	3				43
1.2		9	72	52	46	56	51	53	41	31	29	21	8	1			470
0.8																	
C.7		12	64	34	53	41	49	32	36	44	33	18	5	1			422
0.6			4	3		1		5		4	2						19
0.5									4	4							8
0.4																	
0.2																	
LESS																	
TOTAL		21	149	93	102	105	102	95	86	87	65	43	16	2			966

TABLE XXVIII
MANEUVER n_z VERSUS AIRSPEED BY MISSION SEGMENT BY ALTITUDE BY GROSS WEIGHT

NZ MANEUVERS VS VEL. BY MISS. SEG. ASCENT, ALT. LESS, WGT. LESS

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2			4		1												5
0.8																	
0.7	1	1	1														3
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL	1	1	5		1												8

NZ MANEUVERS VS VEL. BY MISS. SEG. ASCENT, ALT. LESS, WGT. 20000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3	1				1												2
1.2	3	1	17	8	1	3	4			1							38
0.8																	
0.7	16	[illegible]	13	3			2		2								38
0.6			1														1
0.5						1			1								2
0.4																	
0.2																	
LESS																	
TOTAL	20	3	31	11	2	4	6		3	1							81

NZ MANEUVERS VS VEL. BY MISS. SEG. ASCENT, ALT. LESS, WGT. 22000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2	4	8	16		1		1	2									32
0.8																	
0.7	7		5		1			1									14
0.6			1														1
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL	11	8	22		2		1	3									47

NZ MANEUVERS VS VEL. BY MISS. SEG. ASCENT, ALT. LESS, WGT. 26000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2																	
0.8																	
0.7			1														1
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL			1														1

TABLE XXVIII - contd.

NZ MANEUVERS VS VEL. BY MISS. SEG. ASCENT, ALT. LESS, WGT. 20000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2			1														1
0.8																	
0.7	2		1		1												4
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL	2		2		1												5

NZ MANEUVERS VS VEL. BY MISS. SEG. ASCENT, ALT. LESS, WGT. 32000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2																	
0.8																	
0.7																	
0.6			1														1
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL			1														1

NZ MANEUVERS VS VEL. BY MISS. SEG. ASCENT, ALT. 1000, WGT. LESS

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2	1		1	1													3
0.8																	
0.7	1	1			1												3
0.6	1																1
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL	3	1	1	1	1												7

NZ MANEUVERS VS VEL. BY MISS. SEG. ASCENT, ALT. 1000, WGT. 20000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3							1										1
1.2	3		10	7	2	5	3	5	2								37
0.8																	
0.7	1	1	5	2	2	2	1	2									16
0.6																	
0.5					1												1
0.4																	
0.2																	
LESS																	
TOTAL	4	1	15	9	5	7	5	7	2								55

TABLE XXVIII - contd.

NZ MANEUVERS VS VEL. BY MISS. SEG. ASCENT, ALT. 1000, WGT. 22000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2	1		1				1	2	1						1		7
0.8																	
0.7			4		1			1	1								7
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL	1		5		1		1	3	2						1		14

NZ MANEUVERS VS VEL. BY MISS. SEG. ASCENT, ALT. 1000, WGT. 24000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2	1		1				2										4
0.8																	
0.7			1			1											2
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL	1		2			1	2										6

NZ MANEUVERS VS VEL. BY MISS. SEG. ASCENT, ALT. 1000, WGT. 26000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2	1																1
0.8																	
0.7	1		1														2
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL	2		1														3

NZ MANEUVERS VS VEL. BY MISS. SEG. ASCENT, ALT. 1000, WGT. 28000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2		1															1
0.8																	
0.7				1													1
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL		1		1													2

NZ MANEUVERS VS VEL. BY MISS. SEG. ASCENT. ALT. 1000, WGT. 30000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3				1													1
1.2			1				1										2
0.8																	
0.7			1														1
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL			2	1			1										4

NZ MANEUVERS VS VEL. BY MISS. SEG. ASCENT. ALT. 2000, WGT. LESS

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3				1													1
1.2																	
0.8																	
0.7			1	1	1		1										4
0.6				1													1
0.5																	
0.4				1													1
0.2																	
LESS																	
TOTAL			1	4	1		1										7

NZ MANEUVERS VS VEL. BY MISS. SEG. ASCENT. ALT. 2000, WGT. 20000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3									1								1
1.2			1	3	3	4	1		2								14
0.8																	
0.7	2		1	2	2	2	3										12
0.6				1													1
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL	2		2	6	5	6	4		3								28

NZ MANEUVERS VS VEL. BY MISS. SEG. ASCENT. ALT. 2000, WGT. 22000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2			1		1			1									3
0.8																	
0.7			1				2	1									4
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL			2		1		2	2									7

NZ MANEUVERS VS VEL. BY MISS. SEG. ASCENT, ALT. 2000, WGT. 26000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2																	
0.8																	
0.7																	1
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL			1														1

NZ MANEUVERS VS VEL. BY MISS. SEG. MANUVR, ALT. LESS, WGT. LESS

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2																	
0.8																	
0.7	1																1
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL	1																1

NZ MANEUVERS VS VEL. BY MISS. SEG. MANUVR, ALT. LESS, WGT. 20000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3				1		1	1	2	1	1							7
1.2		1	2	3	1	3	4	6	6	3							29
0.8																	
0.7						8	6	4	4	2			2				26
0.6				1				2		2							5
0.5																	
0.4														1			1
0.2																	
LESS																	
TOTAL		1	2	5	1	12	11	14	11	8			2	1			68

NZ MANEUVERS VS VEL. BY MISS. SEG. MANUVR, ALT. LESS, WGT. 22000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3				1													1
1.2				3	2	2	1		1			1					10
0.8																	
0.7						1	1		1				1	1			5
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL				4	2	3	2		2			1	1	1			16

NZ MANEUVERS VS VEL. BY MISS. SEG. MANUVR, ALT. LESS, WGT. 26000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2		2	1		1												4
0.8																	
0.7																	
0.6						1											1
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL		2	1		1	1											5

NZ MANEUVERS VS VEL. BY MISS. SEG. MANUVR, ALT. LESS, WGT. 30000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2	2																2
0.8																	
0.7																	
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL	2																2

NZ MANEUVERS VS VEL. BY MISS. SEG. MANUVR, ALT. 1000, WGT. LESS

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2	1	1				1											3
0.8																	
0.7						1											1
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL	1	1				2											4

NZ MANEUVERS VS VEL. BY MISS. SEG. MANUVR, ALT. 1000, WGT. 20000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3				1	1				1								3
1.2		1	3	3	6	5	2	2	4	2							20
0.8																	
0.7	1	1	8	1	4	3	3	2	2	1							26
0.6			1				1	1	1								4
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL	1	2	12	5	11	8	6	5	8	3							61

TABLE XXVIII - contd.

NZ MANEUVERS VS VEL. BY MISS. SEG. MANUVR, ALT. 1000, WGT. 22000

	LESS	40	60	80	85	93	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2			3	1			3								1		8
0.8																	
0.7		1					1							1			3
0.6				1													1
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL		1	3	2			4							1	1		12

NZ MANEUVERS VS VEL. BY MISS. SEG. MANUVR, ALT. 1000, WGT. 26000

	LESS	40	60	80	85	90	95	100	105	1i0	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2						1	3	2									6
0.8																	
C.7					2	2		2									6
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL					2	3	3	4									12

NZ MANEUVERS VS VEL. BY MISS. SEG. MANUVR, ALT. 1000, WGT. 28000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3			1														1
1.2			1		2	2	2										7
0.8																	
0.7			1		1	1	1										4
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL			3		3	3	3										12

TABLE XXVIII - contd.

NZ MANEUVERS VS VEL. BY MISS. SEG. MANUVR, ALT. 1000, WGT. 30000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2			1							1							2
0.8																	
0.7																	
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL			1							1							2

NZ MANEUVERS VS VEL. BY MISS. SEG. MANUVR, ALT. 2000, WGT. 20000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3		1	2									1					4
1.2		2	3	1	4	3	2						1				16
0.8																	
0.7	2		4	3	3	1	1				1						15
0.6											1						1
0.5							1										1
0.4																	
0.2																	
LESS																	
TOTAL	2	3	9	4	7	4	4				2	1	1				37

NZ MANEUVERS VS VEL. BY MISS. SEG. MANUVR, ALT. 2000, WGT. 22000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2			1	1													2
0.8																	
0.7																	
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL			1	1													2

NZ MANEUVERS VS VEL. BY MISS. SEG. MANUVR, ALT. 2000, WGT. 26000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2						1											1
0.8																	
0.7																	
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL						1											1

TABLE XXVIII - contd.

NZ MANEUVERS VS VEL. BY MISS. SEG. DESCNT, ALT. LESS, WGT. LESS

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4	1																1
1.3			1														1
1.2	5	1	9	1	2	1	1										20
0.8																	
0.7	1	1	7			3											12
0.6					1												1
0.5			1														1
0.4			1														1
0.2																	
LESS																	
TOTAL	7	2	19	1	3	4	1										37

NZ MANEUVERS VS VEL. BY MISS. SEG. DESCNT, ALT. LESS, WGT. 20000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3	1		1	3	2	1											8
1.2	18	9	35	9	13	12	7	6	3	3							117
0.8																	
0.7	13	5	21	11	4	7		3	1	4	1						70
0.6						2	2				2						6
0.5	1			2													3
0.4																	
0.2																	
LESS																	
TOTAL	33	14	57	25	21	22	9	9	4	7	3						204

NZ MANEUVERS VS VEL. BY MISS. SEG. DESCNT, ALT. LESS, WGT. 22000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4	2																2
1.3	2					1											3
1.2	2	4	19	1	2	3	2			1							34
0.8																	
0.7	4	3	2	2	2	1		2									20
0.6				2													2
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL	14	7	21	5	4	5	2	2		1							61

NZ MANEUVERS VS VEL. BY MISS. SEG. DESCNT. ALT. LESS, WGT. 24000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2	1																1
0.8																	
0.7																	
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL	1																1

TABLE XXVIII - contd.

NZ MANEUVERS VS VEL. BY MISS. SEG. DESCNT, AL. LESS, WGT. 26000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4				1													1
1.3																	
1.2	1	2	2	2		1			1								9
0.8																	
0.7																	
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL	1	2	2	3		1			1								10

NZ MANEUVERS VS VEL. BY MISS. SEG. DESCNT, ALT. LESS, WGT. 28000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5	2																2
1.4																	
1.3																	
1.2	1	1	2														4
0.8																	
0.7																	
0.6	1																1
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL	4	1	2														7

NZ MANEUVERS VS VEL. BY MISS. SEG. DESCNT, ALT. LESS, WGT. 30000

	LESS	40	60	80	85	90	95	100	.105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2	1																1
0.8																	
0.7																	
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL	1																1

NZ MANEUVERS VS VEL. BY MISS. SEG. DESCNT, ALT. LESS, WGT. 32000

	LESS	40	60	80	85	90	95	100	105	116	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2																	
0.8																	
0.7	1																1
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL	1																1

TABLE XXVIII - contd.

NZ MANEUVERS VS VEL. BY MISS. SEG. DESCNT. ALT. 1000, WGT. LESS

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6		1				1											2
1.5																	
1.4																	
1.3		1					1	2									4
1.2		1	11	1	3	2		2					1				21
0.8																	
0.7			4	3	1		1	1		1			1				12
0.6			1														1
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL		3	16	4	4	3	2	5		1			2				40

NZ MANEUVERS VS VEL. BY MISS. SEG. DESCNT. ALT. 1000, WGT. 20000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4			1														1
1.3	1	1	4	1			1	1									9
1.2	8	8	18	12	8	7	4	3	2	1		3					74
0.8																	
0.7	4	4	15	7	11	4	2	2									49
0.6	2		2	1		1	1										7
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL	15	13	40	21	19	12	8	6	2	1		3					140

NZ MANEUVERS VS VEL. BY MISS. SEG. DESCNT. ALT. 1000, WGT. 22000

	LESS	40	60	80	85	90	95	100	105	116	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4	1		1														2
1.3		1	1				1										3
1.2	6	1	3	3	3	8	10	3									37
0.8																	
0.7	2	3	2	2	3	5	1	1									19
0.6			1														1
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL	9	5	8	5	6	13	12	4									62

NZ MANEUVERS VS VEL. BY MISS. SEG. DESCNT. ALT. 1000, WGT. 24000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3	2																2
1.2	1					1											2
0.8																	
0.7		2															2
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL	3	2				1											6

NZ MANEUVERS VS VEL. BY MISS. SEG. DESCNT, ALT. 1000, WGT. 26000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3			1														1
1.2			1														1
0.8																	
0.7	1		1					2									4
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL	1		3					2									6

NZ MANEUVERS VS VEL. BY MISS. SEG. DESCNT, ALT. 1C00, WGT. 28000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3			1														1
1.2			2	1	1												4
0.8																	
0.7		1	2	3													6
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL		1	5	4	1												11

NZ MANEUVERS VS VEL. BY MISS. SEG. DESCNT, ALT. 2000, WGT. 20000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5				1													1
1.4																	
1.3					1		1										2
1.2	2	1	10	4	5	8	1	2		1							34
0.8																	
0.7		2	5	2	2	5	3	4		1							24
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL	2	3	15	7	8	13	5	6		2							61

NZ MANEUVERS VS VEL. BY MISS. SEG. DESCNT, ALT. 2000, WGT. 22000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3		1															1
1.2				1	1	3					1						6
0.8																	
0.7			1	2													3
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL		1	1	3	1	3					1						10

TABLE XXVIII - contd.

NZ MANEUVERS VS VEL. BY MISS. SEG. DESCNT, ALT. 2000, WGT. 26000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2	1		1	1													3
0.8																	
0.7			1														1
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL	1		2	1													4

NZ MANEUVERS VS VEL. BY MISS. SEG. DESCNT, ALT. 1000, WGT. 30000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2					1												1
0.8																	
0.7	1		1	1													3
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL	1		1	1	1												4

NZ MANEUVERS VS VEL. BY MISS. SEG. DESCNT, ALT. 1000, WGT. 32000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2							1										1
0.8																	
0.7																	
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL							1										1

NZ MANEUVERS VS VEL. BY MISS. SEG. DESCNT, ALT. 2000, WGT. LESS

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3			1			1											2
1.2	2		2		2		1										7
0.8																	
0.7			6	2	1	1		1									11
0.6	2		1				1										4
0.5						1											1
0.4																	
0.2																	
LESS																	
TOTAL	4		10	2	3	3	2	1									25

NZ MANEUVERS VS VEL. BY MISS. SEG. STEADY, ALT. LESS, WGT. 20000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6											1						1
1.5											1						1
1.4			2								2						4
1.3	1	1	7	1		2	3	1	3	3	4		1				27
1.2	10	4	41	34	39	28	37	43	35	12	7	7	2				299
0.8																	
0.7	6	6	49	19	28	30	30	24	31	16	18	14	8	2			271
0.6	1		2	6	2	1	3	2	3	1	1	2	1	1			26
0.5				2				1									3
0.4																	
0.2										1							1
LESS																	
TOTAL	18	11	101	62	69	61	73	71	62	33	34	23	12	3			633
TIME	291.4	31.8	319.5	213.7	245.5	170.6	114.9	75.4	59.3	61.5	34.1	22.2	9.2	3.8	0.	0.	1652.9

NZ MANEUVERS VS VEL. BY MISS. SEG. STEADY, ALT. LESS, WGT. LESS

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3			1				3										4
1.2		1			1	8	3	1									14
0.8																	
0.7			2	2		5	5	3									17
0.6								1									1
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL		1	3	2	1	13	11	5									36
TIME	43.7	5.7	32.2	10.4	18.6	17.0	12.6	5.4	2.4	1.3	1.7	1.5	0.6	0.	0.	0.	153.3

NZ MANEUVERS VS VEL. BY MISS. SEG. DESCNT, ALT. 2000, WGT. 28000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2																	
0.8																	
0.7					1												1
0.6							1	1									2
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL					1		1	1									3

NZ MANEUVERS VS VEL. BY MISS. SEG. STEADY, ALT. LESS, WGT. 22000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4							3										3
1.3	3		2	4					1								10
1.2	10	4	34	14	18	14	11	7	8	4	1	6	2	2			135
0.8																	
0.7	13	1	26	11	17	7	9	9	4	4	7	5	2				115
0.6			1	3		1	3		1		1						10
0.5			1														1
0.4																	
0.2																	
LESS																	
TOTAL	26	5	64	32	35	22	26	16	14	8	9	11	4	2			274
TIME	108.7	21.2	109.6	61.4	73.4	74.1	56.1	45.3	48.0	28.7	12.8	8.2	2.4	0.9	0.	0.	730.7

NZ MANEUVERS VS VEL. BY MISS. SEG. STEADY, ALT. LESS, WGT. 24000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2							1		1								2
0.8																	
0.7							1		1								2
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL							2		2								4
TIME	0.7	0.	0.	0.	0.	1.6	6.1	3.3	4.7	1.5	1.5	1.8	1.4	0.3	0.	0.	22.9

NZ MANEUVERS VS VEL. BY MISS. SEG. STEADY, ALT. LESS, WGT. 26000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2	1		4		1		1			1		2					10
0.8																	
0.7									1	3	1						5
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL	1		4		1		1		1	4	1	2					15
TIME	1.6	0.5	13.4	12.4	13.4	24.0	22.1	12.9	8.2	4.4	1.9	3.8	1.1	0.	0.	0.	119.8

TABLE XXVIII - contd.

NZ MANEUVERS VS VEL. BY MISS. SEG. STEADY, ALT. LESS, WGT. 20000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2												1	2				3
0.8																	
0.7					1					2		1	1				5
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL					1					2		2	3				8
TIME	7.2	1.6	10.4	10.6	6.7	4.9	5.4	6.2	1.5	1.8	5.2	4.3	1.2	0.2	0.	0.	75.2

NZ MANEUVERS VS VEL. BY MISS. SEG. STEADY, ALT. LESS, WGT. 30000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2																	
0.8																	
0.7	3		1														4
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL	3		1														4
TIME	21.7	0.	5.3	2.3	0.9	1.1	0.9	0.	0.	0.	0.	0.	0.	0.	0.	0.	32.3

NZ MANEUVERS VS VEL. BY MISS. SEG. STEADY, ALT. LESS, WGT. 32000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2										2							2
0.8																	
0.7										1	1						2
0.6									1	1							2
0.5										1							1
0.4																	
0.2																	
LESS																	
TOTAL									1	5	1						7
TIME	2.0	0.	1.8	1.7	1.1	1.0	3.0	11.5	11.3	5.0	4.9	0.6	0.	0.	0.	0.	44.8

NZ MANEUVERS VS VEL. BY MISS. SEG. STEADY, ALT. 1000, WGT. LESS

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3			1			1											2
1.2			2	1	1	2	5	2	1	1		1					16
0.8																	
0.7			2	1	1	4	1		1	1		1	1				13
0.6				1				1									2
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL			5	3	2	7	6	3	2	2		2	1				33
TIME	14.2	0.5	21.8	22.3	20.2	13.4	8.6	10.1	8.4	14.2	2.3	3.6	3.8	0.	0.	0.	143.5

NZ MANEUVERS VS VEL. BY MISS. SEG. STEADY, ALT. 1000, WGT. 20000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4			2		1		1										4
1.3				1	1		2	1			1						6
1.2	3	1	17	7	13	21	[illegible]	18	6	15	16	2					143
0.8																	
C.7	1	1	12	7	20	13	6	12	5	10	9	6					102
0.6				1		2			3								6
0.5			2														2
0.4																	
0.2																	
LESS																	
TOTAL	4	2	33	16	35	36	33	31	14	25	26	8					263
TIME	159.8	18.8	227.3	140.1	184.4	145.6	121.4	95.1	72.7	35.9	23.0	11.5	17.5	1.8	0.	0.	1294.9

NZ MANEUVERS VS VEL. BY MISS. SEG. STEADY, ALT. 1000, WGT. 22000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3						1	2										3
1.2	1		6	4	5	8	18	9		4	3	2	2				60
0.8																	
0.7			2	4	7	4	11	7	1	3	2	3					44
0.6							1		1								2
0.5			1														1
0.4																	
0.2																	
LESS																	
TOTAL	1		9	8	12	13	30	16	2	7	5	5	2				110
TIME	70.3	9.5	88.5	30.8	33.8	58.2	65.9	29.8	27.6	47.6	35.7	16.6	12.6	1.9	0.	0.	520.7

NZ MANEUVERS VS VEL. BY MISS. SEG. STEADY, ALT. 1000, WGT. 24000

	LESS	40	60	80	85	90	95	100	105	110	11J	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2						1		2		2	6	4					15
0.8																	
0.7					1		1	1	2	1	1	2					9
0.6																	
0.5																	
0.4																	
C.2																	
LESS																	
TOTAL					1	1	1	3	2	3	7	6					24
TIME	5.2	1.8	19.6	4.9	10.7	18.3	16.3	10.2	14.1	25.3	10.3	5.7	2.5	0.	0.	0.	145.0

NZ MANEUVERS VS VEL. BY MISS. SEG. STEADY, ALT. 1000, WGT. 26000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2							1										1
0.8																	
0.7						1	1	1		1							4
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL						1	2	1		1							5
TIME	0.5	0.	4.9	5.8	6.9	7.2	7.6	8.2	6.3	3.5	0.	0.	0.	0.	0.	0.	50.7

NZ MANEUVERS VS VEL. BY MISS. SEG. STEADY, ALT. 1000, WGT. 28000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3					1												1
1.2				1	1	2	3	3									10
0.8																	
0.7					2	1	2										5
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL				1	4	3	5	3									16
TIME	5.8	1.1	18.7	20.5	26.5	34.3	46.2	21.6	4.8	2.4	1.0	0.3	C.	0.	0.	0.	183.0

NZ MANEUVERS VS VEL. BY MISS. SEG. STEADY, ALT. 1000, WGT. 30000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3			2														2
1.2			2	1	1	3	1	2									10
0.8																	
0.7			3	1	1	1						1					7
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL			7	2	2	4	1	2				1					19
TIME	0.9	0.4	20.1	18.5	30.2	31.7	31.8	14.4	8.2	2.8	1.6	2.5	2.3	0.3	0.	0.	165.7

NZ MANEUVERS VS VEL. BY MISS. SEG. STEADY, ALT. 2000, WGT. LESS

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3								1									1
1.2			3	2	5	2	7	4	1								24
0.8																	
0.7				1	2	3	6	1									13
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL			3	3	7	5	13	6	1								38
TIME	2.4	0.	7.8	7.6	8.0	12.7	21.8	14.1	9.5	2.5	1.0	12.6	4.7	0.4	0.	0.	107.1

NZ MANEUVERS VS VEL. BY MISS. SEG. STEADY, ALT. 2000, WGT. 20000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3				1		1		1									3
1.2	1		6	8	16	12	6	10	10	6	4						79
0.8																	
0.7			4	7	16	16	9	11	9	3	3		1				79
0.6				1	1	1	2		1	1							7
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL	1		10	17	33	30	17	22	20	10	7		1				168
TIME	3.4	6.0	76.6	50.5	66.9	64.8	75.1	94.4	87.7	30.8	25.8	19.0	10.5	1.0	0.	0.	612.6

TABLE XXVIII - contd.

NZ MANEUVERS VS VEL. BY MISS. SEG. STEADY, ALT. 2000, WGT. 22000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3					2				1	1							4
1.2			3	4	6	1	9	3	1	2	3		1				33
C.8																	
0.7			3	4	5	6	7	1		4	2	2	1				35
0.6						1											1
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL			6	8	13	8	16	4	2	7	5	2	2				73
TIME	1.7	0.	36.2	22.1	28.1	23.7	26.3	20.6	21.9	17.0	7.9	7.4	13.0	2.8	0.	0.	228.7

NZ MANEUVERS VS VEL. BY MISS. SEG. STEADY, ALT. 2000, WGT. 24000

	LESS	40	60	80	85	90	95	106	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2							1		8	1							10
0.8																	
0.7								2		2	1						5
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL							1	2	8	3	1						15
TIME	0.	1.6	9.9	3.2	3.9	9.6	7.1	6.3	9.3	6.7	12.7	6.7	1.5	0.	0.	0.	78.4

NZ MANEUVERS VS VEL. BY MISS. SEG. STEADY, ALT. 2000, WGT. 26000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2						1											1
0.8																	
0.7						1			1								2
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL						2			1								3
TIME	0.	0.	0.8	0.4	1.0	3.7	4.5	7.0	20.7	19.4	9.2	0.	0.	0.	0.	0.	66.7

TABLE XXVIII - contd.

NZ MANEUVERS VS VEL. BY MISS. SEG. STEADY, ALT. 2000, WGT. 28000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3							1										1
1.2																	
0.8																	
0.7				1				1									2
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL				1			1	1									3
TIME	0.5	4.8	11.8	3.2	3.8	0.3	0.4	1.7	2.7	0.8	0.2	0.	0.	0.	0.	0.	30.3

NZ MANEUVERS VS VEL. BY MISS. SEG. STEADY, ALT. 2500, WGT. 30000

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3																	
1.2										1							1
0.8																	
0.7																	
0.6																	
0.5																	
0.4																	
0.2																	
LESS																	
TOTAL										1							1
TIME	0.	0.	0.	1.0	1.8	2.4	5.0	2.4	1.9	0.6	0.4	0.1	0.	0.	0.	0.	14.9

TABLE XXIX
MANEUVER n_z VERSUS μ BY MISSION SEGMENT BY ALTITUDE BY C_T/σ

NZ MANEUVERS VS MU BY MISS. SEG. ASCENT, ALT. LESS, CT/S 0.06

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3										
1.2					1					1
0.8										
0.7			1							1
0.6										
0.5						1				1
0.4										
0.2										
LESS										
TOTAL			1		1	1				3

TABLE XXIX - contd.

NZ MANEUVERS VS MU BY MISS. SEG. ASCENT, ALT. LESS, CT/S 0.09

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3		1				1				2
1.2		5	2	12	43	11	1			74
0.8										
0.7	1	15	7	8	17	6				54
0.6				1	1					2
0.5							1			1
0.4										
0.2										
LESS										
TOTAL	1	21	9	21	61	18	2			133

NZ MANEUVERS VS MU BY MISS. SEG. ASCENT, ALT. LESS, CT/S 0.12

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3										
1.2					1					1
0.8										
0.7		1	1	1	1	1				5
0.6										
0.5										
0.4										
0.2										
LESS										
TOTAL		1	1	1	2	1				6

TABLE XXIX - contd.

NZ MANEUVERS VS MU BY MISS. SEG. ASCENT, ALT. LESS, CT/S 0.15

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3										
1.2										
0.8										
0.7										
0.6					1					1
0.5										
0.4										
0.2										
LESS										
TOTAL					1					1

NZ MANEUVERS VS MU BY MISS. SEG. ASCENT, ALT. 1000, CT/S 0.09

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3						1				1
1.2		5		1	17	19	1	1		44
0.8										
0.7		2	1	4	9	9	1			26
0.6		1								1
0.5						1				1
0.4										
0.2										
LESS										
TOTAL		8	1	5	26	30	2	1		73

TABLE XXIX - contd.

NZ MANEUVERS VS MU BY MISS. SEG. ASCENT, ALT. 1000, CT/S 0.12

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3										
1.2		2		1	2	4				9
0.8										
0.7		1		1	2	2				6
0.6										
0.5										
0.4										
0.2										
LESS										
TOTAL		3		2	4	6				15

NZ MANEUVERS VS MU BY MISS. SEG. ASCENT, ALT. 1000, CT/S 0.15

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3					1					1
1.2					1	1				2
0.8										
0.7										
0.6										
0.5										
0.4										
0.2										
LESS										
TOTAL					2	1				3

TABLE XXIX - contd.

NZ MANEUVERS VS MU BY MISS. SEG. ASCENT, ALT. 2000, CT/S 0.09

	LESS	0.CO	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3						1	1			2
1.2					4	8	1			13
0.8										
0.7	1		1		4	12				18
0.6					1	1				2
0.5										
0.4						1				1
0.2										
LESS										
TOTAL	1		1		9	23	2			36

NZ MANEUVERS VS MU BY MISS. SEG. ASCENT, ALT. 2000, CT/S 0.12

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3										
1.2					1	3				4
0.8										
0.7					1	2				3
0.6										
0.5										
0.4										
0.2										
LESS										
TOTAL					2	5				7

TABLE XXIX - contd.

NZ MANEUVERS VS MU BY MISS. SEG. MANUVR, ALT. LESS, CT/S 0.06

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3										
1.2										
0.8										
0.7										
0.6							1			1
0.5										
0.4										
0.2										
LESS										
TOTAL							1			1

NZ MANEUVERS VS MU BY MISS. SEG. MANUVR, ALT. LESS, CT/S 0.09

	LESS	0.CO	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3					2	4	2			8
1.2				1	7	19	12			39
0.8										
0.7		1				21	8	2		32
0.6					1	2	1			4
0.5										
0.4								1		1
0.2										
LESS										
TOTAL		1		1	10	46	23	3		84

TABLE XXIX - contd.

NZ MANEUVERS VS MU BY MISS. SEG. MANUVR, ALT. LESS, CT/S 0.12

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3										
1.2		2		2	1	1				6
0.8										
0.7										
0.6						1				1
0.5										
0.4										
0.2										
LESS										
TOTAL		2		2	1	2				7

NZ MANEUVERS VS MU BY MISS. SEG. MANUVR, ALT. 1000, CT/S 0.09

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3					1	1	1			3
1.2			2	2	8	21	3	1		37
0.8										
0.7		1	1	1	9	14	3	1		30
0.6					2	2	1			5
0.5										
0.4										
0.2										
LESS										
TOTAL		1	3	3	20	38	8	2		75

TABLE XXIX - contd.

NZ MANEUVERS VS MU BY MISS. SEG. MANUVR, ALT. 1000, CT/S 0.12

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3				1						1
1.2					3	13	1			17
0.8										
0.7					1	9				10
0.6										
0.5										
0.4										
0.2										
LESS										
TOTAL				1	4	22	1			28

NZ MANEUVERS VS MU BY MISS. SEG. MANUVR, ALT. 2000, CT/S 0.09

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3				1	2		1			4
1.2				2	5	7	1			15
0.8										
0.7			1	1	4	7	1			14
0.6							1			1
0.5						1				1
0.4										
0.2										
LESS										
TOTAL			1	4	11	15	4			35

TABLE XXIX - contd.

NZ MANEUVERS VS MU BY MISS. SEG. MANUVR, ALT. 2000, CT/S 0.12

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3										
1.2						4				4
0.8										
0.7			1							1
0.6										
0.5										
0.4										
0.2										
LESS										
TOTAL			1			4				5

NZ MANEUVERS VS MU BY MISS. SEG. DESCNT, ALT. LESS, CT/S 0.06

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3										
1.2			1							1
0.8										
0.7				2	1					3
0.6										
0.5										
0.4				1						1
0.2										
LESS										
TOTAL			1	3	1					5

NZ MANEUVERS VS MU BY MISS. SEG. DESCNT, ALT. LESS, CT/S 0.09

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	C.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4		3								3
1.3		1	2	1	5	3				12
1.2		16	10	31	61	45	7			170
0.8										
0.7	1	9	12	14	37	21	5			99
0.6					2	5	2			9
0.5			1	1	2					4
0.4										
0.2										
LESS										
TOTAL	1	29	25	47	107	74	14			297

NZ MANEUVERS VS MU BY MISS. SEG. DESCNT, ALT. LESS, CT/S 0.12

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5			2							2
1.4					1					1
1.3										
1.2		2	2	4	5	2				15
0.8										
0.7										
0.6			1							1
0.5										
0.4										
0.2										
LESS										
TOTAL		2	5	4	6	2				19

TABLE XXIX - contd.

NZ MANEUVERS VS MU BY MISS. SEG. DESCNT, ALT. LESS, CT/S 0.15

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3										
1.2										
0.8										
0.7		1								1
0.6										
0.5										
0.4										
0.2										
LESS										
TOTAL		1								1

NZ MANEUVERS VS MU BY MISS. SEG. DESCNT, ALT. 1000, CT/S 0.06

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3										
1.2										
0.8										
0.7					2					2
0.6										
0.5										
0.4										
0.2										
LESS										
TOTAL					2					2

TABLE XXIX - contd.

NZ MANEUVERS VS MU BY MISS. SEG. DESCNT, ALT. 1000, CT/S 0.09

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6				1		1				2
1.5										
1.4		1		2						3
1.3		1		3	5	7				16
1.2	1	8	4	15	42	52	5			127
0.8										
0.7		3	2	10	28	30	2			75
0.6		2		1	3	3				9
0.5										
0.4										
0.2										
LESS										
TOTAL	1	15	6	32	78	93	7			232

NZ MANEUVERS VS MU BY MISS. SEG. DESCNT, ALT. 1000, CT/S 0.12

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3		1	1		2					4
1.2		2			7	2	1			12
0.8										
0.7		2	1	3	7	3	1			17
0.6										
0.5										
0.4										
0.2										
LESS										
TOTAL		5	2	3	16	5	2			33

TABLE XXIX - contd.

NZ MANEUVERS VS MU BY MISS. SEG. DESCNT, ALT. 1000, CT/S 0.15

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3										
1.2					1	1				2
0.8										
0.7					1					1
0.6										
0.5										
0.4										
0.2										
LESS										
TOTAL					2	1				3

NZ MANEUVERS VS MU BY MISS. SEG. DESCNT, ALT. 2000, CT/S 0.09

	LESS	0.CO	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5					1					1
1.4										
1.3				1	2	2				5
1.2	2	1	1	2	18	19	1			44
0.8										
0.7				2	19	12	2			35
0.6	2				1	1				4
0.5						1				1
0.4										
0.2										
LESS										
TOTAL	4	1	1	5	41	35	3			90

TABLE XXIX - contd.

NZ MANEUVERS VS MU BY MISS. SEG. DESCNT, ALT. 2000, CT/S 0.12

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3										
1.2		1			2	2	1			6
0.8										
0.7					1	4				5
0.6						2				2
0.5										
0.4										
0.2										
LESS										
TOTAL		1			3	8	1			13

NZ MANEUVERS VS MU BY MISS. SEG. STEADY, ALT. LESS, CT/S 0.06

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3										
1.2		1				4				5
0.8										
0.7						1				1
0.6										
0.5										
0.4										
0.2										
LESS										
TOTAL		1				5				6
TIME	2.9	20.5	1.9	0.7	1.0	8.0	3.6	0.	0.	38.7

NZ MANEUVERS VS MU BY MISS. SEG. STEADY, ALT. LESS, CT/S 0.09

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6							1			1
1.5							1			1
1.4					2	3	2			7
1.3		4		2	14	11	10			41
1.2	2	13	4	17	130	216	60	2		444
0.8										
0.7	1	14	4	14	120	166	82	2		403
0.6			1		12	16	7	1		37
0.5					3	1				4
0.4										
0.2							1			1
LESS										
TOTAL	3	31	9	33	281	413	164	5		939
TIME	64.5	389.4	50.7	93.4	745.6	916.0	238.9	3.8	0.	2502.3

NZ MANEUVERS VS MU BY MISS. SEG. STEADY, ALT. LESS, CT/S 0.12

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3										
1.2		1		1	3	3	6			14
0.8										
0.7		3			1	3	8			15
0.6										
0.5										
0.4										
0.2										
LESS										
TOTAL		4		1	4	6	14			29
TIME	0.	24.7	5.1	2.6	56.9	109.0	37.4	0.2	0.	235.9

TABLE XXIX - contd.

NZ MANEUVERS VS MU BY MISS. SEG. STEADY, ALT. LESS, CT/S 0.15

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3										
1.2							2			2
0.8										
0.7							2			2
0.6							2			2
0.5							1			1
0.4										
0.2										
LESS										
TOTAL							7			7
TIME	0.	3.2	0.2	0.6	9.2	23.3	18.5	0.	0.	55.1

NZ MANEUVERS VS MU BY MISS. SEG. STEADY, ALT. 1000, CT/S 0.09

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4					2	2				4
1.3					1	9	1			11
1.2		3	1	1	39	124	52			220
0.8										
0.7			1	2	31	86	38			158
0.6					2	6	2			10
0.5					3					3
0.4										
0.2										
LESS										
TOTAL		3	2	3	78	227	93			406
TIME	35.7	171.9	33.3	57.4	535.0	801.8	271.8	4.9	0.	1911.9

TABLE XXIX - contd.

NZ MANEUVERS VS MU BY MISS. SEG. STEADY, ALT. 1000, CT/S 0.12

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3						1				1
1.2					5	15	11			31
0.8										
0.7					4	13	7			24
0.6										
C.5										
0.4										
0.2										
LESS										
TOTAL					9	29	18			56
TIME	2.6	11.4	2.5	7.4	98.5	285.9	70.4	0.	0.	478.8

NZ MANEUVERS VS MU BY MISS. SEG. STEADY, ALT. 1000, CT/S 0.15

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3					2					2
1.2						4				4
0.8										
0.7						1	1			2
0.6										
0.5										
0.4										
0.2										
LESS										
TOTAL					2	5	1			8
TIME	0.1	0.7	0.2	0.5	19.9	55.7	18.6	0.3	0.	95.9

TABLE XXIX - contd.

NZ MANEUVERS VS MU BY MISS. SEG. STEADY, ALT. 2000, CT/S 0.09

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3					1	4	1			6
1.2	1				26	80	23	1		131
0.8										
0.7					23	77	22			122
0.6					1	6	1			8
0.5										
0.4										
0.2										
LESS										
TOTAL	1				51	167	47	1		267
TIME	4.9	1.4	1.2	14.0	190.3	489.3	189.2	9.1	0.	899.4

NZ MANEUVERS VS MU BY MISS. SEG. STEADY, ALT. 2000, CT/S 0.12

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3						1	2			3
1.2						2	14			16
0.8										
0.7					1	7	6			14
0.6										
0.5										
0.4										
0.2										
LESS										
TOTAL					1	10	22			33
TIME	0.	0.	0.	18.9	22.6	75.6	104.7	1.7	0.	223.5

TABLE XXIX - contd.

NZ MANEUVERS VS MU BY MISS. SEG. STEADY, ALT. 2000, CTFS 0.15

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3										
1.2							1			1
0.8										
0.7										
0.6										
0.5										
0.4										
0.2										
LESS										
TOTAL							1			1
TIME	0.	0.5	0.	0.	1.7	11.6	2.1	0.	0.	15.9

TABLE XXX
MANEUVER n_z VERSUS μ BY MISSION SEGMENT

NZ MANEUVERS VS MU BY MISS. SEG. ASCENT

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3		1			1	3	1			6
1.2		12	2	14	70	46	3	1		148
0.8										
0.7	2	19	11	14	34	32	1			113
0.6		1		1	3	1				6
0.5						2	1			3
0.4						1				1
0.2										
LESS										
TOTAL	2	33	13	29	108	85	6	1		277

TABLE XXX - contd.

NZ MANEUVERS VS MU BY MISS. SEG. MANUVR

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6										
1.5										
1.4										
1.3				2	5	5	4			16
1.2		2	2	7	24	65	17	1		118
0.8										
0.7		2	3	2	14	51	12	3		87
0.6					3	5	4			12
0.5						1				1
0.4								1		1
0.2										
LESS										
TOTAL		4	5	11	46	127	37	5		235

NZ MANEUVERS VS MU BY MISS. SEG. DESCNT

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6				1		1				2
1.5			2		1					3
1.4		4		2	1					7
1.3		3	3	5	14	12				37
1.2	3	30	18	52	136	123	15			377
0.8										
0.7	1	15	15	31	96	70	10			238
0.6	2	2	1	1	6	11	2			25
0.5			1	1	2	1				5
0.4				1						1
0.2										
LESS										
TOTAL	6	54	40	94	256	218	27			695

TABLE XXX - contd.

NZ MANEUVERS VS MU BY MISS. SEG. STEADY

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6							1			1
1.5							1			1
1.4					4	5	2			11
1.3		4		2	18	26	14			64
1.2	3	18	5	19	203	448	169	3		868
0.8										
0.7	1	17	5	16	180	354	166	2		741
0.6			1		15	28	12	1		57
0.5					6	1	1			8
0.4										
0.2							1			1
LESS										
TOTAL	4	39	11	37	426	862	367	6		1752
TIME	110.8	623.6	95.2	195.6	1680.7	2776.1	955.2	20.0	0.	6457.3

TABLE XXXI
MANEUVER n_z VERSUS AIRSPEED
BY MISSION SEGMENT

NZ MANEUVERS VS VEL. BY MISS. SEG. ASCENT

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3	1			2	1		1		1								6
1.2	14	10	54	19	9	12	13	10	5	1					1		148
0.8																	
0.7	31	5	37	9	9	5	9	5	3								113
0.6	1		3	2													6
0.5					1	1			1								3
0.4				1													1
0.2																	
LESS																	
TOTAL	47	15	94	33	20	18	23	15	10	1					1		277

NZ MANEUVERS VS VEL. BY MISS. SEG. MANUVR

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6																	
1.5																	
1.4																	
1.3		1	3	3	1	1	1	2	2	1		1					16
1.2	3	7	15	12	16	18	17	10	11	6		1	1		1		118
0.8																	
0.7	4	2	13	4	10	17	13	8	7	3	1		3	2			87
0.6			1	2		1	1	3	1	2	1						12
0.5							1										1
0.4														1			1
0.2																	
LESS																	
TOTAL	7	10	32	21	27	37	33	23	21	12	2	2	4	3	1		235

NZ MANEUVERS VS VEL. BY MISS. SEG. DESCNT

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6		1				1											2
1.5	2			1													3
1.4	4		2	1													7
1.3	6	4	10	6	3	3	4	3									37
1.2	49	28	115	36	43	46	27	16	6	6	1	3	1				377
0.8																	
0.7	31	21	68	35	25	26	7	16	1	6	1		1				238
0.6	5		5	3	1	3	5	1			2						25
0.5	1		1	2		1											5
0.4			1														1
0.2																	
LESS																	
TOTAL	98	54	202	82	72	80	43	36	7	12	4	3	2				695

NZ MANEUVERS VS VEL. BY MISS. SEG. STEADY

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6											1						1
1.5											1						1
1.4			4		1		4				2						11
1.3	4	1	13	7	4	5	11	4	5	4	5		1				64
1.2	26	10	118	76	107	103	126	104	71	51	40	25	9	2			868
0.8																	
0.7	23	8	104	58	101	92	89	73	46	51	45	35	14	2			741
0.6	1		3	12	3	6	[illegible]	4	10	3	2	2	1	1			57
0.5			4	2				1		1							8
0.4																	
0.2										1							1
LESS																	
TOTAL	54	19	246	155	216	206	239	186	132	111	96	62	25	5			1752
TIME	821.7	105.1	1[illegible]44.5	644.0	785.1	720.5	661.7	501.8	433.7	316.0	195.1	128.6	86.4	13.2	0.	0.	4457.3

TABLE XXXII
MANEUVER n_z VERSUS μ

NZ MANEUVERS VS MU COMPOSITE

	LESS	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	TOTAL
2.4										
2.2										
2.0										
1.8										
1.7										
1.6				1		1	1			3
1.5			2		1		1			4
1.4		4		2	5	5	2			18
1.3		8	3	9	38	46	19			123
1.2	6	62	27	92	433	682	204	5		1511
0.8										
0.7	4	53	34	63	324	507	189	5		1179
0.6	2	3	2	2	27	45	18	1		100
0.5			1	1	8	5	2			17
0.4				1		1		1		3
0.2							1			1
LESS										
TOTAL	12	130	69	171	[illegible]	1292	437	12		2959

TABLE XXXIII
MANEUVER n_z VERSUS AIRSPEED

NZ MANEUVERS VS VELOCITY COMPOSITE

	LESS	40	60	80	85	90	95	100	105	110	115	120	125	130	135	140	TOTAL
2.4																	
2.2																	
2.0																	
1.8																	
1.7																	
1.6		1				1					1						3
1.5	2			1							1						4
1.4	4		6	1	1		4				2						18
1.3	11	6	26	16	9	9	17	9	8	5	5	1	1				123
1.2	92	55	302	143	175	179	183	140	93	64	41	29	11	2	2		1511
0.8																	
0.7	89	36	222	106	145	140	118	102	57	60	47	35	18	4			1179
0.6	7		12	19	4	10	15	8	11	5	5	2	1	1			100
0.5	1		5	4	1	2	1	1	1	1							17
0.4			1	1										1			3
0.2										1							1
LESS																	
TOTAL	206	98	574	291	335	341	338	260	170	136	102	67	31	8	2		2959

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R&D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) Technology Incorporated Dayton, Ohio	2a. REPORT SECURITY CLASSIFICATION Unclassified 2b. GROUP

3. REPORT TITLE

CH-47A Chinock Flight Loads Investigation Program

4. DESCRIPTIVE NOTES (Type of report and inclusive dates)

5. AUTHOR(S) (Last name, first name, initial)

Braun, Joseph F.
Giessler, F. Joseph

6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
July 1966	184	5

8a. CONTRACT OR GRANT NO. DA 44-177-AMC-221(T) b. PROJECT NO. Task 1P125901A14229 c. d.	9a. ORIGINATOR'S REPORT NUMBER(S) USAAVLABS Technical Report 66-68 9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)

10. AVAILABILITY/LIMITATION NOTICES

Distribution of this document is unlimited.

11. SUPPLEMENTARY NOTES	12. SPONSORING MILITARY ACTIVITY US Army Aviation Materiel Laboratories Fort Eustis, Virginia

13. ABSTRACT

This report covers the collection and presentation of 165 hours of usable flight data for the CH-47A helicopter. The data recording system and the data processing procedure are described, and an analysis summary of the results of the flight data is presented. The flight data were recorded between 9 September 1964 and 2 December 1965. The area of operation was primarily at or adjacent to Fort Benning, Georgia. To analyze parameters according to distinct flight phases, the reduced data were separated into four mission segments: (1) takeoff and ascent; (2) maneuver; (3) descent, flare, and landing; and (4) steady state. In the form of tables, histograms, and exceedance curves, the data indicate the time flown in the mission segments and parameter ranges and the number of parameter peaks occurring in the missions and ranges of other parameters. Exceedance curves are given for both the maneuver and the gust normal load factors.

DD FORM 1 JAN 64 1473

Unclassified

Security Classification

Unclassified

Security Classification

14. KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
Aircraft Structures Operational Airloads						

INSTRUCTIONS

1. ORIGINATING ACTIVITY: Enter the name and address of the contractor, subcontractor, grantee, Department of Defense activity or other organization *(corporate author)* issuing the report.

2a. REPORT SECURITY CLASSIFICATION: Enter the overall security classification of the report. Indicate whether "Restricted Data" is included. Marking is to be in accordance with appropriate security regulations.

2b. GROUP: Automatic downgrading is specified in DoD Directive 5200.10 and Armed Forces Industrial Manual. Enter the group number. Also, when applicable, show that optional markings have been used for Group 3 and Group 4 as authorized.

3. REPORT TITLE: Enter the complete report title in all capital letters. Titles in all cases should be unclassified. If a meaningful title cannot be selected without classification, show title classification in all capitals in parenthesis immediately following the title.

4. DESCRIPTIVE NOTES: If appropriate, enter the type of report, e.g., interim, progress, summary, annual, or final. Give the inclusive dates when a specific reporting period is covered.

5. AUTHOR(S): Enter the name(s) of author(s) as shown on or in the report. Enter last name, first name, middle initial. If military, show rank and branch of service. The name of the principal author is an absolute minimum requirement.

6. REPORT DATE: Enter the date of the report as day, month, year; or month, year. If more than one date appears on the report, use date of publication.

7a. TOTAL NUMBER OF PAGES: The total page count should follow normal pagination procedures, i.e., enter the number of pages containing information.

7b. NUMBER OF REFERENCES: Enter the total number of references cited in the report.

8a. CONTRACT OR GRANT NUMBER: If appropriate, enter the applicable number of the contract or grant under which the report was written.

8b, 8c, & 8d. PROJECT NUMBER: Enter the appropriate military department identification, such as project number, subproject number, system numbers, task number, etc.

9a. ORIGINATOR'S REPORT NUMBER(S): Enter the official report number by which the document will be identified and controlled by the originating activity. This number must be unique to this report.

9b. OTHER REPORT NUMBER(S): If the report has been assigned any other report numbers *(either by the originator or by the sponsor)*, also enter this number(s).

10. AVAILABILITY/LIMITATION NOTICES: Enter any limitations on further dissemination of the report, other than those imposed by security classification, using standard statements such as:

(1) "Qualified requesters may obtain copies of this report from DDC."

(2) "Foreign announcement and dissemination of this report by DDC is not authorized."

(3) "U. S. Government agencies may obtain copies of this report directly from DDC. Other qualified DDC users shall request through ____________."

(4) "U. S. military agencies may obtain copies of this report directly from DDC. Other qualified users shall request through ____________."

(5) "All distribution of this report is controlled. Qualified DDC users shall request through ____________."

If the report has been furnished to the Office of Technical Services, Department of Commerce, for sale to the public, indicate this fact and enter the price, if known.

11. SUPPLEMENTARY NOTES: Use for additional explanatory notes.

12. SPONSORING MILITARY ACTIVITY: Enter the name of the departmental project office or laboratory sponsoring *(paying for)* the research and development. Include address.

13. ABSTRACT: Enter an abstract giving a brief and factual summary of the document indicative of the report, even though it may also appear elsewhere in the body of the technical report. If additional space is required, a continuation sheet shall be attached.

It is highly desirable that the abstract of classified reports be unclassified. Each paragraph of the abstract shall end with an indication of the military security classification of the information in the paragraph, represented as *(TS), (S), (C)*, or *(U)*.

There is no limitation on the length of the abstract. However, the suggested length is from 150 to 225 words.

14. KEY WORDS: Key words are technically meaningful terms or short phrases that characterize a report and may be used as index entries for cataloging the report. Key words must be selected so that no security classification is required. Identifiers, such as equipment model designation, trade name, military project code name, geographic location, may be used as key words but will be followed by an indication of technical context. The assignment of links, rules, and weights is optional.

Unclassified

Security Classification

4994-66